

@
HG5302
U6
1918



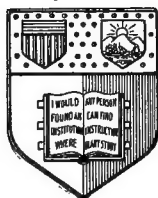
Cornell University Library
HG 5302.U6 1918

Investments in Latin America and the Bri



3 1924 014 008 407

mann



*New York
State College of Agriculture
At Cornell University
Ithaca, N. Y.*

Library

Lithomount
Pamphlet
Binders
Gaylord Bros. Inc.
Makers
Syracuse, N. Y.
Pat. Jan. 21, 1908

Doc. C 1874/48
DEPARTMENT OF COMMERCE

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

B. S. CUTLER, Chief

SPECIAL AGENTS SERIES—No. 169

INVESTMENTS IN LATIN AMERICA AND THE BRITISH WEST INDIES

By

FREDERIC M. HALSEY

Special Agent

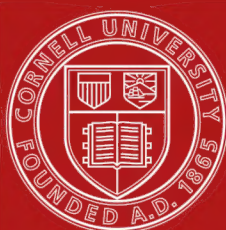


PRICE, 50 CENTS

**Sold by the Superintendent of Documents, Government Printing Office
Washington, D. C.**

**WASHINGTON
GOVERNMENT PRINTING OFFICE**

1916



Cornell University Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

@

HG5302

U6

1918

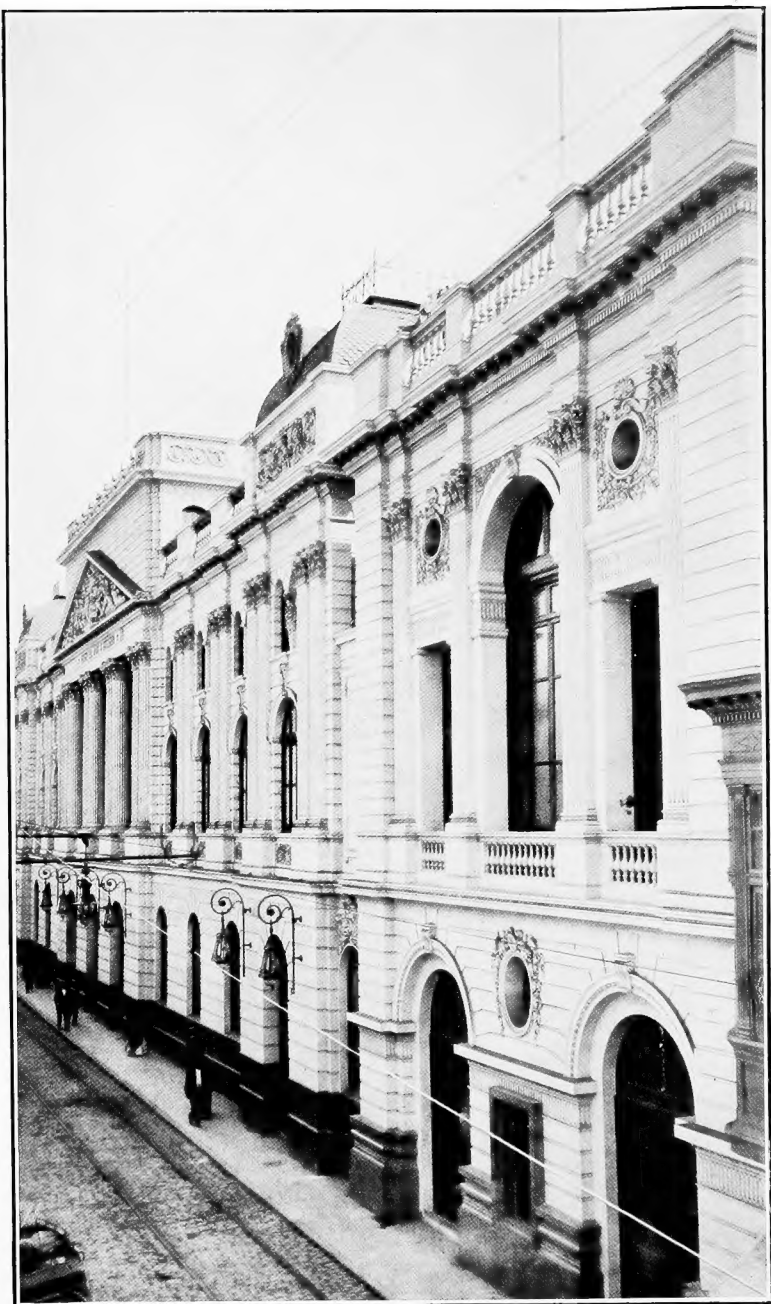


FIG. 1.—BANK OF PERU AND LONDON, LIMA.

DEPARTMENT OF COMMERCE

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

B. S. CUTLER, Chief

SPECIAL AGENTS SERIES—No. 169

**INVESTMENTS IN LATIN AMERICA
AND THE BRITISH WEST INDIES**

By

FREDERIC M. HALSEY

Special Agent



PRICE, 50 CENTS

**Sold by the Superintendent of Documents, Government Printing Office
Washington, D. C.**

**WASHINGTON
GOVERNMENT PRINTING OFFICE**

1918

@155689

CONTENTS.

	Page.
Letter of submittal.....	17
Introduction.....	19
Part I.—SOUTH AMERICA.	
Argentina.....	23
Introduction.....	23
Scope and magnitude of foreign investments.....	24
Federal loans and finances.....	26
Plan of readjustment as result of crisis.....	28
Steady advancement in credit and value of securities.....	29
Bonds issued during 1915.....	30
Total bonds outstanding—Position of foreign investors.....	30
Internal debt of Republic.....	31
Cedulas of National Mortgage Bank.....	32
Total external debt.....	33
Provincial loans.....	33
Province of Buenos Aires.....	33
Province of Cordoba.....	35
Province of Corrientes.....	35
Other provincial loans (internal).....	35
Municipal loans.....	36
Banks and banking.....	37
Bank of the Argentine Nation.....	38
Condition and general character of Argentine banks.....	38
Italian Commercial Bank.....	41
Argentine Popular Bank.....	41
Spanish Bank of the River Plate.....	42
German Transatlantic Bank.....	42
British banks in Argentina.....	43
Other foreign banks.....	44
Interest rates paid.....	44
Insurance companies.....	44
Railway development.....	46
Central Argentine Railway.....	47
Buenos Aires Great Southern Railway.....	49
Buenos Aires & Pacific Railway and its acquisitions and extensions..	51
Buenos Aires Western Railway.....	54
Cordoba Central Railway.....	56
Entre Rios Railway.....	58
Argentine North Eastern Railway.....	59
Central Railway of the Chubut Co.....	60
Argentine Railway.....	61
French Railway of the Province of Santa Fe.....	61
Province of Buenos Aires Railway.....	63

Argentina—Continued.

	Page.
Railway development—Continued.	
Rosario & Puerto Belgrano Railway.....	64
Buenos Aires Central Railway.....	64
Economic results of foreign railway investments.....	65
Total payments of dividends and interest on securities.....	65
Government railways.....	66
Public utilities.....	68
Electric light and power companies.....	68
Gas companies.....	71
Tramways and subways.....	72
Telephone investments.....	76
Water supply and sanitary works.....	76
Mining enterprises.....	79
Petroleum development.....	80
Discovery and development of southern field.....	81
Government and private operation.....	82
Quality of oil.....	83
Marked increase of prices—Undeveloped fields.....	83
Utilization of forest resources.....	84
The quebracho industry.....	84
Other forest activities—Statistics of industry.....	86
Pastoral and agricultural development.....	87
Statistics of live stock.....	87
British companies in the field.....	88
Investment of Argentinian capital.....	88
Exportation of pastoral products.....	89
The dairy industry.....	91
Cereal crops.....	91
The sugar industry.....	92
Meat-packing companies.....	94
Manufacturing and commercial pursuits.....	97
Bolivia.....	100
Introduction.....	100
Government loans and finances.....	102
Municipal loans.....	103
Banks.....	103
Railway development.....	105
Antofagasta & Bolivia Railway.....	105
Arica-La Paz Railway.....	107
Guaqui-La Paz Railway.....	108
Other railways in operation or under construction.....	108
Projects under consideration.....	109
Public utilities.....	110
The rubber industry.....	111
Mining enterprises.....	111
Petroleum resources.....	114
Distribution of Bolivia fields.....	115
Geological conditions.....	115
Quality of Bolivian petroleum.....	115
Remarks on general conditions.....	116
Manufacturing.....	116
Foreign capital invested in Bolivia.....	116

	Page.
Brazil	117
Introduction.....	117
Public debt of Federal Government.....	119
Principal external issues.....	119
Sterling floating debt.....	122
Internal debt.....	122
State issues.....	124
State of Alagoas.....	124
State of Amazonas.....	124
State of Bahia.....	125
State of Espirito Santo.....	126
State of Maranhão.....	126
State of Ceara.....	126
State of Minas Geraes.....	127
State of Goyaz.....	127
State of Matto Grosso.....	127
State of Para.....	127
State of Parahyba.....	128
State of Parana.....	128
State of Pernambuco.....	128
State of Rio Grande do Norte.....	129
State of Rio Grande do Sul.....	129
State of Rio de Janeiro.....	130
State of Santa Catharina.....	130
State of São Paulo.....	130
State of Sergipe.....	132
Municipal issues.....	132
City of Bahia.....	132
Bello Horizonte.....	133
Manaos.....	133
City of Para.....	133
Pelotas.....	134
City of Pernambuco (Recife).....	134
Porto Alegre.....	134
City of Rio de Janeiro.....	135
Santos.....	136
City of São Paulo.....	137
Internal and semiexternal obligations of Brazilian municipalities.....	138
Banks	139
Insurance companies	142
Railway development	142
Central of Brazil Railway.....	143
São Paulo Railway.....	144
Leopoldina Railway.....	145
Leopoldina Terminal Co.....	147
Brazil Railway.....	147
Madeira-Mamore Railway.....	155
Great Western of Brazil Railway.....	156
Brazil Northeastern Railway.....	157
Northwestern of Brazil Railway.....	158
Brazil Great Southern Railway and extensions.....	158
Quarahim International Bridge Co.....	159
State-owned railways in Bahia.....	159
Railways of the State of Para.....	160

Brazil—Continued.

Railway development—Continued.	Page.
Railway development in State of São Paulo.....	160
Other Brazilian railways.....	161
Shares and debentures of important railways.....	162
Mileage of Brazilian railways.....	163
Public utilities.....	164
Brazilian Traction, Light & Power Co.....	164
Rio de Janeiro City Improvement Co.....	166
Tramways and electric plant in Curitiba.....	167
Water service and drainage system of São Paulo.....	167
City of Santos Improvement Co.....	167
Public-utility companies in Ceara.....	167
Pernambuco Tramways & Power Co.....	168
Public-utility companies in Manaos.....	169
Para Public Works Co.—Para Electric Railways & Lighting Co.....	169
São Paulo Gas Co.....	170
Bahia Tramways, Light & Power Co.....	170
Minas Geraes Electric Light & Tramways Co.....	171
Tramway system in Nictheroy.....	171
Public utilities in Rio Grande do Sul.....	171
Other companies.....	171
Possibilities of water-power development.....	172
Securities quoted on stock exchange at Rio de Janeiro.....	173
Port and harbor improvements.....	173
Port of Para.....	174
Port of Manaos.....	175
Port Antonio.....	175
Ports between Para and Pernambuco.....	175
Port of Pernambuco.....	176
Ports of Jaragua and Aracaju.....	176
Port of Bahia.....	176
Port of Victoria.....	177
Port of Rio de Janeiro.....	177
Port of Santos.....	177
Ports between Santos and Rio Grande do Sul.....	177
Steamship lines.....	178
Mining enterprises.....	179
Manganese industry.....	179
Gold mining.....	180
Copper mining.....	182
Diamond mining.....	184
Iron ore.....	185
Coal mining.....	187
Platinum.....	189
Nickel.....	189
Salt.....	189
Monazitic sands.....	189
Graphite.....	190
Other minerals and precious stones.....	190
Petroleum deposits.....	192
Agriculture.....	192
Coffee.....	192
Cacao.....	194

Brazil—Continued.

Agriculture—Continued.

	Page.
Beans.....	195
Rubber.....	195
Tobacco.....	196
Coconuts and copra—Oil nuts—Vegetable ivory.....	196
Carnauba wax.....	198
Sugar.....	198
Other crops.....	199
Miscellaneous agricultural data.....	200

Live-stock and meat industries..... 201

Cattle raising in Rio Grande do Sul.....	201
Live-stock industry in São Paulo and Matto Grosso.....	203
Sheep and hogs in Brazil.....	204
British interests.....	204
Operations of Brazil Land, Cattle & Packing Co.....	204
Reports by American consul general.....	204

Timber resources..... 208

Manufacturing enterprises..... 209

Industries of São Paulo.....	211
Industries of Bahia.....	211
Rio de Janeiro Flour Mills & Granaries (Ltd.).....	212
Local manufacturing companies.....	212
Summary.....	213

Foreign investments in Brazil..... 213

Chile..... 216

Introduction..... 216

Finances and public debt..... 217

External loans.....	218
Internal loans outstanding.....	220
Municipal finances and loans.....	220
Present situation and prospective requirements.....	222

Foreign investments in Chile..... 222

Banks and banking..... 223

Insurance companies..... 227

Railway development..... 229

Central Railway.....	230
Longitudinal Railway.....	230
Finances and operating results of Government railways.....	231
Caldera-Copiapo line.....	232
Coquimbo Railway.....	232
Huasco Railway.....	232
Arica-La Paz Railway.....	233
Earnings and expenditures of Government lines.....	233
Railway statistics.....	234
Arica & Tacna Railway.....	234
Nitrate Railways Co.....	235
Anglo-Chilean Nitrate & Railway Co.—Agua Santa Railway.....	236
Antofagasta & Bolivia Railway.....	236
Aguas Blancas Railway.....	238
Taltal Railway.....	239
Mineral railway from Algarrobo mines to Caldera.....	239
Carrizal & Cerro Blanco Railway.....	239
Chilean Transandine Railway.....	240

Chile—Continued.

Railway development—Continued.

	Page.
Railway operated by Arauco Co.....	241
Small privately owned railways—Transandine projects.....	241
Summary of railway situation.....	241
Railway capitalization and quotations for securities.....	242

Public utilities.....	242
-----------------------	-----

Minerals and metals.....	245
--------------------------	-----

Nitrates.....	247
---------------	-----

Coal mining.....	250
------------------	-----

Iron mining.....	251
------------------	-----

Copper mining.....	252
--------------------	-----

Sulphur mining.....	257
---------------------	-----

Gold mining.....	257
------------------	-----

Silver mining.....	258
--------------------	-----

Chilean salt deposits.....	258
----------------------------	-----

Miscellaneous mining data.....	258
--------------------------------	-----

Oil in Chile.....	259
-------------------	-----

Industrial development.....	259
-----------------------------	-----

Miscellaneous forms of investment.....	260
--	-----

Operation of ascensors.....	260
-----------------------------	-----

Stores and hotels.....	261
------------------------	-----

Steamship lines.....	261
----------------------	-----

Santiago and Valparaiso Stock Exchanges.....	261
--	-----

Lumbering activities and timber resources.....	262
--	-----

Agriculture and viticulture—Live-stock industry.....	263
--	-----

Summary of Chilean field.....	264
-------------------------------	-----

Colombia.....	265
---------------	-----

Introduction.....	265
-------------------	-----

External debt.....	266
--------------------	-----

Internal debt.....	267
--------------------	-----

Municipal loans.....	268
----------------------	-----

Banks.....	268
------------	-----

Railway development.....	268
--------------------------	-----

Antioquia Railway.....	269
------------------------	-----

Barranquilla Railway & Pier Co.....	270
-------------------------------------	-----

Colombia Railway & Navigation Co.....	270
---------------------------------------	-----

Cucuta Railway.....	270
---------------------	-----

Dorada Extension Railway—Dorada Ropeway Extension.....	271
--	-----

Colombian National (or Girardot) Railway.....	272
---	-----

Pacific Railway.....	272
----------------------	-----

Colombian Northern Railway.....	273
---------------------------------	-----

Sabana Railway.....	273
---------------------	-----

Tolima Railway—Colombian Southern Railway.....	273
--	-----

Santa Marta Railway.....	273
--------------------------	-----

Discussion of comprehensive program for railway development.....	274
--	-----

Public utilities.....	275
-----------------------	-----

Mining enterprises.....	275
-------------------------	-----

Companies engaged in gold mining.....	276
---------------------------------------	-----

Emerald mining.....	277
---------------------	-----

Platinum.....	278
---------------	-----

Iron.....	279
-----------	-----

Coal.....	279
-----------	-----

Salt.....	279
-----------	-----

Colombia—Continued.

Mining enterprises—Continued.

	Page.
Asphalt.....	279
Petroleum.....	279
Summary of possibilities.....	281
Agriculture and stock raising.....	281
Forest products.....	282
Manufacturing.....	282
Summary of investment prospects.....	283

Ecuador..... 285

Introduction.....	285
National debt.....	285
Provincial and municipal finances.....	286
Banks.....	287
Railways.....	287
Guayaquil & Quito Railway.....	287
Other railways in the Republic.....	289
Public utilities.....	290
Mining and petroleum enterprises.....	291
Agriculture.....	292
Forest resources.....	293
Manufacturing.....	293

The Guianas..... 294

British Guiana.....	294
Introduction.....	294
Bonded debt—Finances.....	294
Banking and insurance.....	295
Railway development.....	295
Public utilities.....	297
Mining enterprises.....	298
Timber resources.....	299
Live stock.....	299
Sugar.....	299
Rice.....	300
Coconuts, cacao, etc.....	300
Rubber and balata industries.....	300
Total trade.....	301

Dutch Guiana..... 301

Introduction.....	301
Transportation conditions.....	301
Agriculture and related industries.....	301
Gold mining.....	302
Undeveloped resources—Factors retarding development.....	302

French Guiana..... 303

Paraguay..... 305

Introduction.....	305
Government loans and finances.....	305
Banks.....	308
Insurance companies.....	309
Railway development.....	310
Public utilities.....	312
Mining.....	312
Quebracho and other forest industries.....	313
The live-stock industry.....	315

Paraguay—Continued.	Page.
Agriculture.....	316
The sugar industry.....	316
The yerba-mate industry.....	317
Other agricultural products: Tobacco, fruit, coffee, cotton.....	318
Manufacturing and commercial enterprises.....	319
Summary of investments in Paraguay.....	319
Peru.....	321
Introduction.....	321
Foreign investments in Peru.....	322
Government finances.....	322
Municipal loans.....	323
Banks.....	324
Insurance companies.....	326
Railway development.....	326
Capital and investments of Peruvian Corporation.....	327
Peruvian Central (Oroya) Railway.....	328
Southern Railway of Peru.....	329
Trujillo Railway.....	330
Paita-Piura Railway.....	330
Pacasmayo-Guadalupe Railway.....	331
Chimbote Railway.....	331
Pisco-Ica Railway.....	332
Ilo-Moquegua Railway.....	332
Railways not controlled by Peruvian Corporation.....	332
Miscellaneous railway lines.....	333
Public utilities.....	334
Important companies in Lima-Callao district.....	334
Public-utility enterprises in Arequipa.....	335
Mining enterprises.....	335
The petroleum industry.....	337
Distribution of Peruvian fields.....	337
Surface indications.....	339
Statistics of production.....	339
Guano gathering.....	340
Agriculture.....	340
Local enterprises in the Republic.....	342
Uruguay.....	345
Introduction.....	345
Government finances.....	346
External loans.....	346
Internal loans.....	348
Mortgage Bank certificates.....	348
Municipal external bonds.....	349
Recent financial conditions.....	349
Banks and banking.....	349
Insurance.....	351
Railway development.....	352
Central Uruguay Railway and extensions.....	353
Midland Uruguay Railway.....	356
Northwestern of Uruguay Railway.....	357
Uruguay Northern Railway.....	358
Uruguay East Coast Railway.....	359
Durazno-Trinidad Line (State railway).....	359

Uruguay—Continued.**Railway development—Continued.**

	Page.
Record of operations and outlook for future	359
Project for system of Government railways.....	360
Public utilities.....	361
Montevideo Waterworks Co.....	361
Montevideo Gas Co.....	362
Street railway companies in Montevideo.....	363
Montevideo Telephone Co.....	364
Telegraph lines.....	365

Minerals and mining development.....	365
---	-----

Forest products.....	366
-----------------------------	-----

Live-stock and meat industry.....	366
--	-----

Agriculture.....	368
-------------------------	-----

Manufacturing and industrial enterprises.....	369
--	-----

Venezuela.....	370
-----------------------	-----

Introduction.....	370
--------------------------	-----

Government finances.....	371
---------------------------------	-----

Banks.....	372
-------------------	-----

Railway development.....	374
---------------------------------	-----

Bolivar Railway.....	375
----------------------	-----

La Guaira-Caracas Railway.....	376
--------------------------------	-----

Great Railway of Venezuela.....	376
---------------------------------	-----

Puerto Cabello-Valencia Railway.....	377
--------------------------------------	-----

Central Railway of Venezuela.....	377
-----------------------------------	-----

Great Railway of Tachira.....	378
-------------------------------	-----

La Ceiba Railway.....	379
-----------------------	-----

Santa Barbara-El Vigia Railway.....	379
-------------------------------------	-----

Guanta-Naricual Railway.....	380
------------------------------	-----

Carenero Railway.....	380
-----------------------	-----

Coro-La Vela Railway.....	381
---------------------------	-----

Lines and extensions contemplated or suggested.....	381
---	-----

New law governing railway concessions.....	382
--	-----

Securities and quotations of British-controlled lines.....	382
--	-----

Public utilities.....	383
------------------------------	-----

Mining enterprises.....	384
--------------------------------	-----

Copper.....	384
-------------	-----

Gold.....	384
-----------	-----

Coal and iron.....	385
--------------------	-----

Other minerals.....	386
---------------------	-----

Pearl fisheries.....	386
-----------------------------	-----

The petroleum industry.....	386
------------------------------------	-----

Caribbean Petroleum Co.....	387
-----------------------------	-----

Colon Development Co.....	388
---------------------------	-----

Venezuelan Oil Concessions.....	388
---------------------------------	-----

Venezuela-Falcon Oil Syndicate.....	389
-------------------------------------	-----

Bermudez Co.....	389
------------------	-----

Pauji Concession.....	390
-----------------------	-----

Oil and coal deposits administered by Government.....	390
---	-----

Development of asphalt deposits.....	391
---	-----

Forest products.....	392
-----------------------------	-----

Stock raising and the meat industry.....	393
---	-----

Agriculture.....	394
-------------------------	-----

Manufacturing.....	394
---------------------------	-----

Foreign capital in Venezuela.....	395
--	-----

Part 2.—CENTRAL AMERICA.

	Page.
British Honduras.....	397
Introduction.....	397
Bonded debt.....	397
Banking.....	397
Railways.....	397
Public utilities.....	398
Products of the colony.....	398
Costa Rica.....	400
Introduction.....	400
Bonded debt.....	400
Banks.....	401
Railways.....	401
Costa Rica Railway.....	403
Public utilities.....	404
Agriculture.....	405
Mining enterprises.....	406
Manufacturing.....	407
Foreign investments in Costa Rica.....	408
Guatemala.....	409
Introduction.....	409
Government loans and finances.....	409
Banks.....	410
Railways.....	411
Public utilities.....	414
Mining enterprises.....	415
Opportunities in the Department of Peten.....	416
Forest resources.....	417
Stock raising.....	418
Agricultural products.....	418
Industrial and manufacturing activities.....	419
Present outlook.....	419
Honduras.....	420
Introduction.....	420
Government loans and finances.....	422
Banks.....	423
Railways.....	424
Public utilities.....	425
Mining enterprises.....	425
Agricultural and pastoral industries.....	428
Forest wealth.....	429
Manufacturing.....	429
Surveys by an American company—Proposed undertakings.....	430
Nicaragua.....	432
Introduction.....	432
Funded debt.....	432
Railways.....	434
Public utilities.....	435
Mining enterprises.....	435
Agriculture.....	436
Cattle and other live stock.....	437
Forest products.....	437
Manufacturing.....	437
Foreign capital invested.....	437

	Page.
Panama	438
Introduction.....	438
National debt.....	438
Railways.....	439
Public utilities.....	440
Agriculture.....	441
Cattle raising.....	442
Minerals.....	442
Forest products.....	443
Salvador	444
Introduction.....	444
Debt and finances.....	444
Banks.....	445
Railways.....	445
The Salvador Railway.....	445
International Railways of Central America.....	446
Public works and improvements.....	447
Minerals and mining.....	447
Agriculture—Live stock—Forest resources.....	448
Manufacturing.....	448

Part 3.—THE WEST INDIES.

The Bahama Islands	449
Barbados	450
Introduction.....	450
Loans and finances.....	450
Banks.....	451
Railways.....	451
Public utilities.....	452
Agriculture.....	452
Mining.....	453
Manufacturing.....	453
Guadeloupe	454
Jamaica	455
Introduction.....	455
Funded debt.....	455
Banks.....	456
Railways.....	456
Public utilities.....	458
Mining.....	458
Agriculture and fruit raising.....	459
Forest resources.....	460
Manufacturing.....	460
Foreign investments in Jamaica.....	461
The Leeward Islands	462
Introduction.....	462
Antigua	462
Bonded debt.....	462
Railways and public utilities.....	463
Industries.....	463
Dominica	463
Bonded debt.....	464
Railways and public utilities.....	464
Industries.....	464

The Leeward Islands—Continued.	Page.
Montserrat.....	465
Bonded debt.....	466
Industries.....	466
St. Kitts and Nevis.....	466
Funded debt.....	467
Railways and public utilities.....	467
Industries.....	467
British Virgin Islands.....	468
Summary.....	468
Martinique.....	469
Trinidad and Tobago.....	470
Trinidad.....	470
Introduction.....	470
Government bonds.....	470
Railways.....	471
Public utilities.....	471
Petroleum.....	472
Manjack and asphalt.....	473
Agriculture.....	474
Tobago.....	476
The Windward Islands.....	477
St. Lucia.....	477
Public debt.....	477
Railways and public utilities.....	477
Industries.....	477
Grenada.....	478
Funded debt.....	478
Public utilities.....	478
Industries.....	478
St. Vincent.....	479
British West Indian bonds as investments.....	480

APPENDIXES.

Appendix A.—South America.....	483
Argentina.....	483
Bolivia.....	500
Brazil.....	502
Chile.....	512
Colombia.....	517
Ecuador.....	519
British Guiana.....	520
Dutch Guiana.....	520
Peru.....	520
Uruguay.....	525
Venezuela.....	526
Appendix B.—Central America and the West Indies.....	531
Costa Rica.....	531
Honduras.....	531
Nicaragua.....	531
Salvador.....	532
British West Indies.....	532
Appendix C.—International enterprises and general data.....	536
Mercantile, public-utility, and shipping companies.....	536
Statistics of important Latin American banks.....	538

ILLUSTRATIONS.

	Page.
Fig. 1. Bank of Peru and Lónon, Lima.....	facing.. 1
2. Retiro Station, Central Argentine Railway, Buenos Aires.....	facing.. 48
3. Plaza Constitucion Station, Buenos Aires Great Southern Rail- way	facing.. 49
4. Scene from Puente del Inca, showing mountains of Argentine Andes and section of cog railway.....	facing.. 60
5. Buenos Aires & Pacific Railway: Water tank cars and stacks of wood burned in locomotives.....	facing.. 61
6. Type of car used in Buenos Aires subway.....	facing.. 74
7. Large grain elevator at Rosario, Argentina.....	facing.. 75
8. Antofagasta & Bolivia Railway, at frontier between Bolivia and Chile	facing.. 112
9. Silver mines at Oruro, Bolivia.....	facing.. 113
10. Hydraulic station of Rio de Janeiro Tramway, Light & Power Co.....	facing.. 164
11. Floating quays at Manaus, Brazil.....	facing.. 165
12. Street scene in São Paulo, Brazil.....	facing.. 192
13. Coffee-cleaning plant, Brazil.....	facing.. 193
14. Scene at Lota coal mines, Chile.....	facing.. 250
15. Train at Antofagasta, Chile, loaded with nitrate.....	facing.. 251
16. Steamers on Magdalena River, Republic of Colombia.....	facing.. 268
17. Railway construction in Colombia: "El Gobierno" fill on Amaga line	facing.. 269
18. Bridge connecting two tunnels on Peruvian Central Railway.....	facing.. 328
19. View of Cerro de Pasco Railway, Peru.....	facing.. 329
20. Backus and Johnston smelter at Casapalca, Peru.....	facing.. 336
21. Port of Mollendo, Peru.....	facing.. 337
22. American locomotives being erected at Durazno, Uruguay.....	facing.. 360
23. Liebig beef-extract plant, Fray Bentos, Uruguay.....	facing.. 361
Railway map of South America.....	facing.. 544

LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF FOREIGN AND DOMESTIC COMMERCE,

Washington, June 15, 1918.

SIR: There is submitted herewith a report by Special Agent Fred-
eric M. Halsey on investments in Latin America (except Mexico)
and the British West Indies. One of the outstanding facts in the
foreign commerce of the great exporting nations has been the way
in which such trade has been enlarged and stimulated by the invest-
ment of capital in the countries to which the goods are sold. Enter-
prises that owe their existence to foreign capital are naturally in-
clined to purchase equipment and supplies in the land of their finan-
cial origin. And, again, the willingness of foreign capitalists to
assist in the development of a country's resources creates a favor-
able attitude on the part of that country's citizens and a receptivity
toward other business propositions. Before the war the command-
ing position of European nations in certain Latin-American markets
was due in large measure to their great investments there.

The realization of these facts has impelled the Bureau of Foreign
and Domestic Commerce to undertake a comprehensive survey of
the investment situation in this field, to the end that a larger amount
of American capital may eventually find its way thither and a cor-
responding commercial advantage be derived. The Bureau appre-
ciates fully the exigencies of war conditions and the undesirability
of diverting capital at this time to foreign fields, yet it feels that
preparation may properly be made for the expansion that will come
after the termination of the war. By means of the present mono-
graph it desires to place in the hands of American financial inter-
ests a succinct statement of what has been done thus far in the in-
vestment line.

Mr. Halsey has purposely avoided speculations as to the future or
suggestions with regard to new, uncertain ventures. He has simply
presented a record of present effort and past accomplishment. Each
country is dealt with individually. Records of the national debts,
and in some instances of State and municipal debts, are given, to-
gether with brief financial histories of the several countries. Rail-
ways and public utilities are discussed, as well as mines, farming

activities, manufacturing establishments, and the other forms of enterprise that have attracted capital to the rich territory lying to the south. The financial statements of public companies are included in many cases to indicate some of the results obtained.

The statistical data and other information contained in this monograph are necessarily incomplete. It is, however, the hope of the Bureau that it will prove a concise manual of useful facts and the groundwork for future action or investigation. Almost without exception the statistics have been drawn from official sources, usually from annual reports of companies or statements furnished by the various Governments. All data concerning Government, State, and municipal obligations are presented without comment.

Certain of the illustrations have been made available through the courtesy of the Pan American Union.

Respectfully,

B. S. CUTLER,
Chief of Bureau.

TO HON. WILLIAM C. REDFIELD,
Secretary of Commerce.

INVESTMENTS IN LATIN AMERICA AND THE BRITISH WEST INDIES.

INTRODUCTION.

The Continent of South America, containing as it does extensive areas of undeveloped and partly developed territories, has proved a magnet for the investment of considerable amounts of foreign capital. Great Britain, France, Germany, Belgium, the Netherlands, and to a less extent, perhaps, the United States, have investigated opportunities in the southern continent and have successfully developed railways and public utilities, mines and manufactures, farms and cattle ranches, have purchased Government, State, and municipal bonds, and have otherwise made investments in the field. It is a matter of some interest (and perhaps significance) that Great Britain during the several months preceding the outbreak of the great European war placed larger sums in Argentina than in the United States.

The outbreak of the war in 1914 brought about an immediate change of conditions in the European investment markets. The conservation of the resources of the various warring countries and their neighbors immediately stopped the exportation of capital from Europe, and the Latin Republics became dependent on the United States for their needs financially.

Before the war the interests of the United States in South America, other than in mines and the packing industry, were negligible. During the lull that followed the closing of the various stock exchanges much attention was given to Latin America, and the first steps were taken to interest American bankers in the opportunities presented in that field. During the early months of 1915 a loan was made to Argentina by American investment houses, and the bonds were publicly offered with success. Other loans followed this one, and a number of shares in railways in Argentina were purchased by investors through London. Two short-term note issues of South American railways were afterwards floated in the United States, these being obligations of the Antofagasta (Chile) & Bolivia Railway (\$3,000,000), and the Central Argentine Railway (\$15,000,000). Other investments (largely in mining securities) were made, including bond issues of the Cerro de Pasco mines, the Chile Copper Co., and the Braden Copper Co., operating in Peru (Cerro de Pasco Mining Co.) and in Chile. These three great mining properties, developed through the investment of American capital, have become the greatest mining properties in South America and rank among the most important copper producers in the world. American interests have also turned their attention to developing the petroleum resources of Venezuela, Colombia, and Peru, as well as the nitrate

fields of Chile, the manganese deposits of Brazil, and other forms of enterprise.

Concerning the undeveloped wealth of the various South American countries, it may be said that minerals exist in all the Republics, that the forest resources of all (except possibly Uruguay) are very extensive, that oil deposits have been found in almost every country and are worked commercially in Argentina, Colombia, Chile, Ecuador, Peru, and Venezuela, and that there are lands available for the raising of live stock and for agricultural purposes. Although public utilities have been developed to a considerable extent, the vast amount of water power available assures a future of greater importance for this field of enterprise.

Great Britain has long been the largest investor in South America. The following table indicates the approximate amounts placed by that country in the various Latin American nations and in the West Indian Islands. The figures as submitted are said to be conservative:

Class and nationality of securities.	Amount. ^a
CLASS OF SECURITIES.	
Governmental, State, and municipal loans.....	\$1, 571, 879, 500
Railway securities, stocks, debentures, etc.....	2, 350, 519, 500
Industrial, land, timber, oil, lighting, etc.....	1, 265, 290, 000
Total.....	5, 187, 689, 000
DISTRIBUTION OF INVESTMENTS.	
Argentina.....	1, 897, 935, 000
Brazil.....	1, 119, 295, 000
Chile.....	340, 655, 000
Uruguay.....	243, 325, 000
Peru.....	121, 662, 500
Venezuela.....	39, 905, 300
Colombia.....	33, 578, 900
Bolivia.....	17, 519, 400
Paraguay.....	14, 509, 500
Ecuador.....	13, 626, 200
Guianas.....	8, 759, 700
Total, South America.....	3, 850, 861, 500
Mexico.....	798, 106, 000
Cuba.....	229, 698, 800
Guatemala.....	51, 098, 200
Costa Rica.....	32, 118, 900
Honduras.....	15, 086, 200
Nicaragua.....	5, 839, 800
Santo Domingo and Haiti.....	3, 406, 500
British Honduras.....	1, 460, 000
Porto Rico.....	2, 919, 900
Total, Mexico, Central America, and Latin West Indies.....	1, 139, 734, 300
Shipping.....	97, 330, 000
Banks and trust companies.....	99, 763, 200
Grand total.....	5, 187, 689, 000

^a Converted at the normal rate of \$4.8665 from round-sum estimates expressed in pounds sterling.

In addition to the above total, Great Britain has invested fairly large amounts in British West Indian, colonial, and other securities. The total British West Indian investments would probably approximate \$60,000,000, including some \$30,000,000 in colonial loans and upward of \$20,000,000 in Trinidad oil securities. Thus the approximate total invested in governmental and municipal securities and in stock enterprises throughout South and Central America, Mexico, and the West Indies may conservatively be said to approach \$5,250,000,000.

No figures are available as to the extent of French investments in Latin America. The amount placed in Argentina is said to total \$400,000,000, and fully that sum has gone into Brazilian loans and enterprises; in fact, some estimates place the total amount of French capital in that field as high as \$800,000,000. There is likewise French capital in practically all of the other Republics. The investments in Argentina include three railway lines with a mileage of approximately 2,500, Government bonds, banks, etc. The French have made loans from time to time to Bolivia; hold interests in mines, and have otherwise made investments in that Republic. French engineers are at present building a section of the railway link to connect the highlands of Bolivia with the railways of Argentina. The public-utility enterprises of La Paz, the capital, are under French ownership and management. Numerous Brazilian Federal and State loans have been floated in France, while a number of important railways, including a large interest in the Brazil Railway, are held by the French. Their investments in Ecuador, Colombia, Chile, and Venezuela have also been large. Possibly a fair estimate of French investments in Latin America would be \$1,500,000,000 to \$1,700,000,000.

Germany, with its chain of banks and its pre-war merchant marine, occupied an important place in Latin America. With the possible exception of its banks, the most important of its investments are in the public-utility field, the *Compañía Aleman Transatlántico de Electricidad*, of Buenos Aires, controlling the most important electric properties of that city, a tramway line in Montevideo, Uruguay, electric properties in Mendoza, Argentina, and electric lighting and street railway properties in Valparaíso and Santiago, Chile. These enterprises, collectively, form probably the largest public-utility group in Latin America. The Great Railway of Venezuela, from Valencia to Caracas, is the only German railway of importance, but German interests in other fields are numerous.

The Netherlands and Belgium are both owners of banks, Latin American Government loans, and other securities. The Netherlands holds probably the second largest block of shares in the Peruvian Corporation, while Belgium has always looked with favor on the "cedulas," or Government-guaranteed mortgage obligations, of the larger Republics. A large amount of Brazil Railway stock is also held by Belgian interests.

Canada has had a place in the field, its interests having been important in the development of the traction and electric-lighting properties of Rio de Janeiro and São Paulo, Brazil. Canadian public-utility companies are also prominent in British Guiana, Trinidad, and Jamaica. Italy, Spain, and one or two other countries also have Latin American investments, but their interests are not large.

The principal subjects discussed in the various chapters of this monograph are Government, State, and municipal loans, banks, railways, public utilities, insurance companies, manufactures, mines, shipping, forest products, and agriculture. In the appendix will be found income accounts of a number of companies (mostly such as are not included in the general discussion), quotations and dividend records of securities listed on the various stock exchanges, and other relevant data.

Part 1.—SOUTH AMERICA.

ARGENTINA.

INTRODUCTION.

Argentina is preeminently a land of progress. Thirty years ago its great natural resources were undeveloped and its rich soil virtually untilled. To-day, as a result of its steady, consistent advance, the Republic has come to rank among the foremost producing nations of the world. The greatest source of wealth lies in the magnificent pampas—grassy, treeless plains, stretching from the Atlantic to the foothills of the Andes and from the Gran Chaco to the far south. Within this vast area millions of bushels of wheat, maize, linseed, oats, etc., are produced, and millions of cattle, sheep, horses, and other domestic animals are raised. The country usually stands seventh among the nations of the world in the production of wheat, fourth in the area of wheat sown, and either first or second in the amount of wheat exported to other countries. The area normally under cultivation is estimated at approximately 17,000,000 acres, which, it is stated, is not more than one-fifth of the area available for the production of this grain. The maize production in 1915 amounted to 8,591,645 tons, valued at nearly \$75,000,000, United States currency. The linseed production of Argentina is the largest in the world, amounting to approximately 1,700,000 tons per annum. Upward of 4,000,000 acres are under cultivation for linseed, as compared with approximately 10,000,000 acres for maize. The value of the agricultural production for the year 1915-16 was nearly \$750,000,000.

The live-stock industry has assumed vast importance. There are at least 30,000,000 head of cattle, 80,000,000 sheep, 9,000,000 horses, and numerous other live stock in the country, valued at more than \$1,250,000,000. There has been developed a vast export business in frozen meats, hides, wool, etc.

The total national production for 1915-16 was estimated at more than \$1,400,000,000, this including animal products to the amount of about \$500,000,000 gold. Argentina is usually spoken of as the richest nation per capita in the world, and this condition is the result of the great productivity of the farms.

With an area of approximately 1,137,200 square miles, Argentina had an estimated population in 1916 of 8,198,006, as compared with 7,885,237 in 1914, 7,171,000 (estimated) in 1911, and 3,995,110 in 1895. During a period of 20 years, therefore, the population has doubled. Buenos Aires, the capital of the Republic, has nearly 1,700,000 inhabitants. It is the largest city in Latin America and the most populous capital city in the Western Hemisphere. The city covers an area of more than 720 square miles, and is a marvel of

splendor and luxury. Real estate sales in the city during a normal year exceeded \$180,000,000 gold. Traction and subway lines have a total mileage of 455 and carry during normal years more than 400,000,000 passengers annually. As a port the city ranks second in the Americas and seventh in the world. Here, in the year 1913, there came from foreign countries a total of 5,137 vessels, of 13,818,646 tons, bringing 85 per cent of the nation's imports and taking 45 per cent of its exports. At Buenos Aires are located the terminals of the great railway systems of the Republic.

Statistics recently issued by the Argentine Government show that the value of the foreign trade of the country during the calendar year 1917 was \$897,924,034 United States currency, of which \$530,914,097 represented exports and \$367,009,937 imports, leaving a net trade balance in favor of the country of \$163,904,160. For the first time in the history of the country the statistics show actual *c. i. f.* values. Formerly fixed values corresponding to the Argentine tariff were used in computing these statistics. These values were fixed in 1898 and no longer represent actual values. The increase in the values of imports in 1917 over those of 1910, when actual values and fixed values were approximately the same, range from 5.7 per cent on silk goods to 259.2 per cent on china and glass ware. Since the beginning of the war the values of imports have increased 95.3 per cent and of exports 74.7 per cent.

The Argentine Government has rectified the total values of exports and imports for the years 1913, 1914, 1915, 1916, and 1917 to correspond to actual values, and these rectified figures are as follows: Imports—1913, \$478,859,146; 1914, \$311,241,415; 1915, \$294,795,926; 1916, \$353,316,001; 1917, \$367,009,937. Exports—1913, \$500,985,551; 1914, \$389,021,914; 1915, \$561,803,004; 1916, \$552,994,539; 1917, \$530,914,097.

A vast increase in foreign trade may be looked for when the European war is ended and immigration on a large scale begins again. Argentina, except in a few lines, had not enjoyed normal prosperity during the three or four years preceding the preparation of this report. This fact, with the lack of immigration, had, temporarily, somewhat checked the nation's progress. The boundless resources of the country and the wonderful fertility of the pampas assure, however, the future of Argentina. The Republic, as will be shown in these pages, has attracted vast sums of foreign capital in the past, and there seems little reason to doubt that it will continue to serve as a magnet for the money of investors.

SCOPE AND MAGNITUDE OF FOREIGN INVESTMENTS.

In the days before the great war the financiers of Europe watched with eager eyes for opportunities that might arise to place sums of money in the development of Argentina. Great Britain took the initiative and has long maintained first position in the field. An estimate recently made by the author of this report placed the total of British capital invested in Argentina at \$1,897,935,000. About one-half of this sum has been used for the construction and operation of railways, including the most important lines in the Republic, and the remainder has been placed in Government loans, public utilities, land enterprises, sugar plantations, cattle ranches and meat

establishments, banks, department stores, etc. A very large part of the national debt of Argentina is held in Great Britain, as are numerous provincial and municipal securities. The British-owned banks are a most important factor in the Argentine Republic, and an all-important aid to British trade.

France has placed, according to estimates by French bankers, upward of \$400,000,000 in Argentina, including important investments in banks, Government loans, one large and several smaller railway systems, land enterprises, etc. German investments are next in importance, powerful Teutonic interests controlling public utilities that operate in Buenos Aires, Rosario, and elsewhere. German banks have in the past wielded great influence in Argentina. A number of large land and cattle concerns have also been financed by German capitalists. While figures are not available, it is reasonable to suppose that nearly \$250,000,000 of German capital is invested in Argentina. These sums have been so carefully placed that great commercial advantages have been obtained by Germany.

The United States, with its banks, meat-packing concerns, and other undertakings, is beginning to be a factor in the economic development of Argentina. The conditions in the European money markets, due to the war, have caused the Argentine Government to seek several loans in the United States, and this has led to the establishment of much closer financial relations between the two countries. Possibly there is \$100,000,000 of American capital in Argentina invested in Government loans, banks, public industrial enterprises, railway bonds, etc.

Fair-sized amounts of Government bonds are held in the Netherlands. Most of the external loans of Argentina are listed on the stock exchange at Amsterdam. Dutch capital is also invested in banking institutions, while an important steamer line of Dutch nationality maintains a regular service to the River Plate. Italian and Spanish capital is also present, mostly in banks. Belgian capitalists control certain banking institutions and hold some land investments.

Between \$4,000,000,000 and \$4,500,000,000 gold of foreign capital is invested in Argentina, according to an estimate made by Dr. Alberto B. Martinez, the well-known Argentine statistician, who delivered a lecture on May 31, 1918, before the Instituto Popular de Conferencias (Popular Institute of Conferences) on the subject of foreign capital investments in Argentina. Dr. Martinez divides foreign investments in Argentina as follows, the amounts being in gold pesos of \$0.9648:

	Pesos.
Various Argentine loans and issues.....	657, 303, 460
Railways	1, 344, 326, 465
Banks	51, 891, 022
Ports	22, 163, 909
Tramways	109, 496, 149
Freezing establishments.....	40, 916, 439
Gas, electricity, water, and drainage companies	78, 373, 018
Land and rural property companies.....	79, 681, 618
Mortgages.....	500, 015, 962
Insurance	3, 886, 464
Industrial establishments	507, 760, 000
Telephone and radio-telegraphic companies.....	21, 340, 000
Commerce.....	465, 169, 244
Total.....	3, 882, 323, 750

Unless unforeseen conditions develop, the United States during the next decade will be the creditor nation for Argentina. Opportunities for the placing of capital in such a rapidly expanding country are presenting themselves daily and will continue to present themselves. American investors have shown themselves responsive to offerings of Argentine securities. Such offerings as have recently been made have been absorbed very quickly. Before 1915 and 1916 American investors had seldom looked across the nation's boundaries for fields in which to place capital. The general change in conditions brought about by the war was responsible for a new investment policy. American capital, forced for the first time to seek new outlets, turned not unnaturally to South America and in making its initial selection chose the Argentine Republic because of its advanced position among the southern nations.

The present report can only picture briefly the scope and magnitude of this investment field. However, the various phases of the field, such as railways, public utilities, governmental securities, industrials, etc., will be considered in a general way. Space will not permit an exhaustive study of each class of investments or the presentation of such material, for example, as complete data concerning the credit and national wealth of the Government, its railways, and other assets.

FEDERAL LOANS AND FINANCES.

Governmental loans of the Argentine Republic have long enjoyed wide favor among European investors. In pre-war days the bonds sold at a substantial premium, indicating the high credit of Argentina in the European markets. After the outbreak of the war the closing of the markets of Great Britain, France, and other countries brought about a decline in the market value of these bonds, and naturally compelled Argentina to pay a higher price than before for necessary funds. In view of the war, the Government has been obliged to retrench in many branches of its service and postpone the carrying out of certain improvements of a national character. Revenues from customs and other sources fell far below expectations, and the general business depression, which dated from a period shortly before the war, was so long extended that fears were expressed that governmental financial difficulties might arise. However, despite the financial uncertainty, the Government maintained its credit in a most praiseworthy manner and punctually met all obligations. The large grain exports of 1915-16 and the general demand for other products of the country naturally brought about an improvement in national credit; this was partially offset, however, by the crop failure of 1916-17.

Detailed information concerning the early financial history of Argentina will not be presented here. Its early financial history was not unlike that of other nations in the making, and difficulties were sometimes encountered.

In 1824 Argentina made its first external loan—£1,000,000 at 6 per cent, sold in London, by the Province of Buenos Aires, at 85 per cent. Interest was defaulted in 1830. In later years the Government recognized the loan and paid it off, converting its arrears of interest into bonds.

In 1863 and 1866, 6 per cent loans were floated, the first in Buenos Aires and the latter abroad, to meet expenditures to carry on the war

with Paraguay. The first-mentioned internal loan was afterwards converted into $3\frac{1}{2}$ per cent external sterling bonds, and the latter loan was extinguished through sinking funds in 1889.

In 1870 the Province of Buenos Aires sold £1,034,700 6 per cent bonds at 88 per cent. These bonds were recognized by the Government as an external loan in the year 1880. The outstanding portion of this loan and of the 6 per cent National Public Works Loan of the Republic (£6,122,400 bonds issued in 1871 at $88\frac{1}{2}$ per cent) were converted in 1889 into $4\frac{1}{2}$ per cent conversion bonds (see a subsequent paragraph). In 1873 the Province of Buenos Aires sold an additional £2,040,800 6 per cent bonds, which were subsequently converted into the $4\frac{1}{2}$ per cent bonds mentioned above. This loan was originally offered for subscription at $89\frac{1}{2}$ per cent and in 1880 was recognized by the Government as a part of its debt.

In 1876, \$6,000,000 9 per cent treasury bonds were sold in Argentina. They were subsequently quoted on European markets. Most of these bonds were afterwards converted into external bonds bearing a lower rate of interest.

During the year 1881 a £2,450,000 6 per cent railway loan was floated in London and Paris at 91 per cent. There was a sinking fund of 1 per cent. The proceeds of the loan were used to provide funds for the construction of various railways, the revenues from the operation of these lines being pledged for the service of the bonds. In 1889 a large part of the loan was converted into 5 per cent debenture stock of the Cordoba Central Railway. The balance was subsequently extinguished.

A 6 per cent loan to the amount of £817,000 was issued in 1882 in London and Paris. The sinking fund of 2 per cent retired a portion of the loan and the balance was converted in 1889 into $4\frac{1}{2}$ per cent conversion bonds. In 1884, £1,714,200 5 per cent bonds were offered in London at $84\frac{1}{2}$ per cent, the principal to be paid off by a cumulative sinking fund of 1 per cent per annum. The bonds sold at 104 during recent years, and are now quoted at about 96. Approximately £850,000 remain outstanding.

During the years 1886 to 1889 several loans were floated and various earlier bond issues exchanged for bonds of the conversion $3\frac{1}{2}$ per cent and $4\frac{1}{2}$ per cent loans. These included the 5 per cent loan of 1886 and 1887, of which £4,000,000 were issued in 1886 and publicly offered by Baring Bros. & Co. in London at 80 per cent. In 1887 the same firm and J. S. Morgan & Co. issued an additional £1,290,000 of the bonds at $85\frac{1}{2}$ per cent. The two issues are redeemable by a cumulative sinking fund of 1 per cent and are secured on customs duties. Approximately £5,000,000 of the two issues remain outstanding. In the same year (1887) a loan known as the Banco Nación (German) 5 per cent loan was floated in Germany. The loan was for approximately \$10,000,000 o/s.¹ An accumulative sinking fund has reduced the total to about \$7,000,000. These bonds are not quoted outside of Germany.

¹ The Argentine gold peso, worth \$0.9648 in United States currency, is designated by the sign \$o/s, the o/s standing for "oro sellado" (coined gold). The paper peso, worth about \$0.47 in United States currency on January 1, 1918, is designated by \$m/n, the m/n standing for "moneda nacional" (national money). These signs will be used throughout the Argentine section of this report. When a figure is followed by either o/s or m/n it must be understood that the \$ sign preceding it indicates Argentine pesos, not American dollars.

In 1887 Argentina made a slight adjustment of its finances by converting \$3,582,315 o/s 9 per cent internal bonds into 5 per cent treasury conversion bonds at the rate of £20 10s. of new bonds for each \$100 of the old bonds. This conversion called for the issuance of £624,000 new bonds. A total of £422,000 of these bonds remain outstanding.

During the years 1887 to 1889 the Government adopted a program of railway expansion and began the construction of various lines in the northern sections of the country. In order to carry on these extensions there was authorized the Northern Central Railway extension 5 per cent Government mortgage loan to secure £3,968,200 bonds, which were issued, £1,300,000 in 1887 at 91½ per cent, £1,500,000 in 1888 at 94 per cent, and £1,168,200 in 1889 at 97 per cent. The bonds are secured by a mortgage on the railway extensions constructed with the proceeds of the loan. Like practically all of the external loans, these bonds are listed on the London Stock Exchange. Approximately £2,700,000 of the loan remains outstanding. The accumulative sinking fund is 1 per cent per annum.

In 1889 a 4½ per cent loan was authorized. Although this was classed as an internal loan, a large proportion of it was offered in Europe at 87 per cent. Its total amount was £3,933,580, and its purpose was to fund debts previously contracted at a higher rate of interest. Approximately £2,700,000 of the bonds remain outstanding.

In the same year the Government authorized two conversion loans in order to fund certain loans issued at an earlier date bearing high rates of interest. These loans bear interest at 4½ per cent and 3½ per cent, respectively, and were issued as follows:

(1) The 4½ per cent loan for £5,290,000 for the purpose of repaying the 6 per cent loans of 1871 and 1882, as well as the 6 per cent loans of 1870 and 1873 of the Province of Buenos Aires; this loan was offered for public subscription at 90 per cent. The accumulative sinking fund of 1 per cent per annum has reduced the total outstanding to approximately £3,700,000.

(2) The 3½ per cent loan for £2,659,500, of which approximately £1,500,000 remains outstanding. These £2,659,500 bonds were given in exchange for \$12,973,200 internal bonds bearing higher rates of interest at the rate of £20 10s. new bonds for each \$100 gold bonds.

In 1890 there were issued £2,976,000 5 per cent railway bonds, known as the Northern Central Railway loan. These bonds were not publicly offered until a number of years later, but were used as collateral for other loans of a temporary character.

PLAN OF READJUSTMENT AS RESULT OF CRISIS.

In the same year the Republic underwent a serious economic and financial crisis, and a committee was appointed by the Bank of England to work out some plan of readjustment. Through the efforts of this committee it was arranged that the Government of Argentina should continue the service of the loans outstanding in the following manner: (1) Loan of 1886-87, interest and sinking fund in cash; (2) all other loans, service of interest and sinking fund from January, 1891, to January, 1894, in 6 per cent funding-loan bonds, secured upon the customs receipts of the Republic, subject to the 1886-87 loan. The coupons of this loan were declared receivable for

customs duties. No new loans were allowed to be issued during the funding period, and surplus revenues were to be used to withdraw paper currency and to create a reserve for the retirement of this funding loan. Altogether £7,630,600 bonds were issued, and all not previously retired by sinking fund were paid off at par in the year 1906.

Late in 1892 it was announced that owing to the condition of the public treasury a further readjustment of finances was requested, and a plan was put into effect whereby the interest on the 5 per cent loan of 1886-87 and on a loan known as the 5 per cent Buenos Aires water-supply and drainage-works loan (for £6,324,400, issued in payment for waterworks contracts) was to be reduced to 4 per cent and the interest on the 6 per cent funding loan of 1891 to 5 per cent between July, 1893, and July, 1898.

In accordance with the plan it was agreed that the interest on all other outstanding loans was to be paid 60 per cent in cash for the period from July, 1893, to July, 1898. Full interest on these loans was to be paid beginning with the latter year. Any surplus earned by the Government was to be used, first, to pay to the holders of the 1886-87 bonds the 1 per cent deducted during the five-year period; and, second, to pay to the holders of the 6 per cent funding loan a similar amount representing interest during the same period. The sinking funds on the various loans were not to be operated until January, 1901.

Through efforts on the part of the Government the finances of the Republic were readjusted at a date earlier than was anticipated, and full interest payments were resumed one year before the expiration of the agreement. Interest on the 5 per cent bonds of 1886-87 for the period 1893 to 1898 was paid in full in 1898, and settlement was made with the holders of the 6 per cent funding-loan bonds on the basis of five-sixths of the amount unpaid. Sinking-fund operations were resumed as scheduled in January, 1901.

During the period 1897 to 1900 the Government created various issues of 4 per cent bonds in settlement of national railway guaranties in arrears and for the settlement of the obligations of the Provinces of Buenos Aires, Santa Fe, Entre Rios, Tucuman, Cordoba, Catamarca, San Juan, San Luis, Corrientes, and Mendoza, as well as the city of Buenos Aires and the Santa Fe Railways. Bonds amounting to £31,870,890 were issued for this purpose, of which approximately £27,000,000 remain outstanding. These bonds are mostly held in Great Britain, France, and Belgium. A sinking fund of one-half of 1 per cent per annum, cumulative, is provided for the service of these loans.

STEADY ADVANCEMENT IN CREDIT AND VALUE OF SECURITIES.

Following the readjustment of its finances the credit of the Republic steadily improved, and the value of its securities steadily advanced. In the years 1907 to 1911 several important loans were authorized. Although these were classed by the Government as internal loans, they were practically all sold abroad.

The 5 per cent internal gold loan of 1907 was authorized to the amount of £7,000,000. These bonds were issued in London, Berlin, and Paris.

In 1908 the Government confined its financial operations to the issuance of £892,857 4 per cent gold bonds, which were subsequently turned over to the Argentine North Eastern Railway as a portion of the cost of certain extensions. In 1910 £466,269 additional 4 per cent bonds were issued to this railway in part payment for its extension to connect with the Paraguay Central Railway.

In 1909 the city of Buenos Aires issued £2,976,180 bonds in London and Germany, secured by certain taxes. These bonds were assumed in 1913 by the National Government.

In 1909 the Government issued £10,000,000 5 per cent internal gold bonds—£2,960,000 in London, £3,400,000 in Paris, £1,640,000 in Berlin, and £2,000,000 in New York. A portion of the bonds offered in New York were resold abroad. The proceeds of the loan were used to provide for railways and other public works. The sinking fund is 1 per cent per annum, cumulative. A 5 per cent loan for £1,209,600 was also created in 1909, the proceeds to be used to purchase the Cordoba & North Western Railway for the Government. The offering price was 101.

During the year 1911 a 350,000,000-franc 4½ per cent internal gold loan was floated in Paris and Antwerp at 99½ per cent, the proceeds to be used for certain public works. The sinking fund is 1 per cent per annum, cumulative.

In 1913 an issue of £5,000,000 5 per cent bonds of the port of the capital (Buenos Aires) was authorized. Approximately £1,000,000 of these bonds were sold to provide for port extensions. In the same year £1,367,500 bonds were authorized, to be issued to the various railway companies for the construction of irrigation works.

BONDS ISSUED DURING 1915.

In 1915 the condition of the financial markets of Europe brought about by the war compelled Argentina to seek new channels in which to obtain funds to carry out certain public works that were under way and to meet the necessary financial requirements of the country. The first issue made by the Government was for £5,000,000 and \$25,000,000 treasury bonds of 1915. The sterling bonds were offered in London and the dollar bonds in the United States. The proceeds of the issue, which matures May, 1920, were used to retire £9,000,000 treasury bills and to pay for public works. The bonds were declared free from all present and future Argentine taxes, and after May 15, 1917, the sterling and the dollar bonds are interchangeable at the rate of \$4.86 per pound sterling. Through this method of exchange a large portion of the bonds sold in Great Britain have been repurchased by American investors.

TOTAL BONDS OUTSTANDING—POSITION OF FOREIGN INVESTORS.

Including the bonds issued during 1915 as above and the internal loans of 1907–1911, but excluding the assumed bonds of the city of Buenos Aires, there were outstanding December 31, 1915, a total of £70,797,702 bonds, the original issues of these having amounted to £86,192,658. Great Britain holds by far the largest amount of these bonds, the remainder being distributed in France, Germany, the Netherlands, Belgium, and the United States. Large additional amounts of bonds were sold in the United States during 1916 and

1917—wholly short-term obligations. The purchase of these by American investors probably gives the United States second rank among the holders of Argentine external bonds, the American holdings now amounting to possibly one-quarter of the total. These bonds have found favor among American investors, and the public offerings have been generally oversubscribed. The holdings of the British, French, and presumably other European investors have largely been loaned to their respective Governments, and a large percentage of them represent collateral for loans made by these nations to carry on the present war.

Argentine bonds in normal pre-war times have enjoyed great favor in Europe. During the period 1911 to 1914 most of the 5 per cent issues sold as high as 104 to 106 per cent, the $4\frac{1}{2}$ per cent bonds as high as 102 per cent, the 4 per cent bonds at $91\frac{1}{2}$ per cent, and the $3\frac{1}{2}$ per cent bonds at $86\frac{1}{2}$ per cent.

The following table shows the quotations of Argentine Government loans on the London Stock Exchange:

Loans.	Amount issued.	Amount outstanding.	High price since 1911. ^a	Price January 1918.
5 per cent of 1884.....	£1,683,100	£675,500	104	93
5 per cent, 1886-87.....	8,290,100	4,497,300	106	96
5 per cent, 1887-88-89, Northern Central Railway extension.....	3,968,200	2,517,700	104 $\frac{1}{2}$	92
5 per cent, 1890, railway.....	2,970,000	2,012,020	104	90
5 per cent treasury conversion, 1887.....	624,000	369,800	103 $\frac{1}{2}$	88
4 $\frac{1}{2}$ per cent internal loan, 1888.....	3,953,700	2,453,080	102	82
4 $\frac{1}{2}$ per cent sterling conversion, 1888.....	5,263,560	3,405,460	102	84
3 $\frac{1}{2}$ per cent external, 1889.....	2,659,500	1,327,680	86 $\frac{1}{2}$	81
5 per cent Buenos Aires water supply and drainage works, 1892.....	6,234,400	4,717,080	105	97
4 per cent railways guaranteed rescission.....	11,603,100	9,080,100	96 $\frac{1}{2}$	81
4 per cent of 1897.....	6,746,031	5,811,692	91 $\frac{1}{2}$	68
4 per cent of 1898.....	1,527,778	1,316,088	91 $\frac{1}{2}$	68
4 per cent of 1899.....	3,035,736	2,614,616	91 $\frac{1}{2}$	68
4 per cent of 1890.....	2,825,515	2,583,855	91 $\frac{1}{2}$	68
4 per cent of 1890, second series.....	2,649,663	2,281,062	91	68
Port of Buenos Aires 5 per cent.....	2,000,000	1,445,000	105	89
5 per cent internal gold loan, 1907.....	7,000,000	2,409,760	104 $\frac{1}{2}$	81
4 per cent bonds of 1908.....	892,857	780,400	90	68
5 per cent internal bonds of 1909.....	10,000,000	2,795,920	104 $\frac{1}{2}$	84
5 per cent internal bonds of 1910.....	1,209,600	1,134,100	105	86
5 per cent port of the capital bonds.....	5,000,500	996,200	103	84
5 per cent irrigation bonds.....	1,367,500	1,153,100	103 $\frac{1}{2}$	84
4 per cent loan of 1910.....	466,270	303,600	90	67

^a The par value of each of these bonds is £100 (see general text). Coupons on all of these issues are payable semiannually, the dates varying.

^b Outstanding balance of portion of issue quoted in London.

INTERNAL DEBT OF REPUBLIC.

Not including the bonds that are classed by Argentina as internal debt but are held externally, there are outstanding approximately \$2,500,000 bonds payable in gold and approximately \$170,000,000 payable in currency. The principal issue is that known as the 5 per cent internal credit of 1905, bonds of which are outstanding to the amount of approximately \$86,000,000 m/n. These bonds sell on the Bolsa (stock exchange) at Buenos Aires at approximately 88 per cent. The 5 per cent internal credit bonds of 1911 are outstanding to the amount of approximately \$47,000,000 m/n. The health works loan of 1902 is next in importance, bonds outstanding totaling about \$10,000,000 m/n. The two gold loans consist of approximately \$2,100,000 o/s $4\frac{1}{2}$ per cent loan of the guaranteed banks and

\$500,000 o/s 5 per cent loan of 1891. These various loans are listed on the Bolsa at Buenos Aires and enjoy favor among the investors of Argentina. Few of them have found their way out of the country.

CEDULAS OF NATIONAL MORTGAGE BANK.

These "cedulas" are certificates to bearer issued by the National Mortgage Bank in lieu of cash to borrowers on various forms of real estate. A market has been created for these cedulas, so that the borrower may readily dispose of them for cash. The principal of these cedulas is paid off by means of an annual sinking fund, usually of 1 per cent per annum (series I is 4 per cent). Throughout the various other Republics of South America a similar system of loaning on real estate is in vogue. Many of the Argentine cedulas are held abroad. The first issue was made in the year 1886, when three currency issues to the total amounts of £1,746,053, £1,309,539, and £1,309,539, respectively, were brought out. The first of these issues was finally extinguished in 1906 and the second and third in 1910. These issues bore interest at the rate of 7 per cent per annum. Two series of £1,746,053 each were issued in 1888, and were finally extinguished through sinking funds in 1912. Gold series A was also issued in 1888, bonds to a total of £3,968,254 being brought out. The sinking fund was the usual 1 per cent per annum. Three other series of cedulas, F, G, and I, the former two dated 1896 and the last-named dated 1905, were extinguished in 1911 and 1912. These issues were for £1,309,539, £873,027, and £221,740. The cedulas of the National Mortgage Bank outstanding September 1, 1917, were as follows:

Series.	Interest rate.	Amortization.	Original issue.	Paid off.	Owued by National Mortgage Bank.	Amount in circulation.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>\$m/n.</i>	<i>\$m/n.</i>	<i>\$m/n.</i>	<i>\$m/n.</i>
A.....	7	1	20,000,000	20,000,000	.....	.....
B.....	7	1	15,000,000	14,337,900	662,100	.....
C.....	7	1	15,000,000	14,575,450	424,550	.....
D.....	7	1	20,000,000	17,303,250	2,696,750	.....
E.....	7	1	20,000,000	17,424,930	2,575,070	.....
F.....	7	1	15,000,000	13,135,300	1,864,700	.....
G.....	7	1	10,000,000	8,664,800	1,335,200	.....
H.....	7	1	61,621,300	47,987,100	4,234,500	9,399,700
I.....	6	4	2,339,900	2,148,000	391,900	.....
J.....	6	1	9,264,100	6,117,800	892,900	2,253,400
K.....	5	1	70,165,000	40,373,150	4,422,950	25,368,900
L.....	6	1	89,966,000	35,999,650	5,363,500	48,602,850
Cedulas hipotecaria Argentina.....	6	1	448,441,900	58,460,700	26,112,300	361,868,900
Second Law 9155:						
First series.....	6	1	49,926,300	1,962,475	2,348,000	45,615,825
Second series.....	6	1	38,390,400	72,600	324,800	35,993,000
Total, currency series.....	.....	.....	881,314,900	298,563,105	53,649,220	529,102,575
A., gold.....	5	1	<i>\$o/s.</i> 20,000,000	<i>\$o/s.</i> 11,453,289	<i>\$o/s.</i> 324,261	<i>\$o/s.</i> 8,222,450

The approximate quotations on the Buenos Aires Stock Exchange for the above series as of September, 1917, were as follows: Series H, 105; series J, 97.50; series K, 88.50; series L, 99; cedulas hipotecaria Argentina, 96; new series, 1914, 93.50.

The gold series (A) is converted into sterling at \$5.04 to the pound, and the currency series at the same rate, with premium on

gold at the rate of 127.27 per cent, officially fixed by the conversion law of 1899. These cédulas are a form of investment very much in favor in Argentina. Large numbers of them are also held abroad, in Spain, Italy, Great Britain, Belgium, the Netherlands, etc. They are listed and comparatively active on the Bolsa at Buenos Aires and enjoy markets in Europe under normal conditions. It is estimated that the interest paid abroad on these cédulas during the financial year 1916 totaled approximately £1,965,000, or nearly three-fourths of the total interest paid on all outstanding issues. During the past two years, it is stated, a small amount of North American capital has sought this form of investment in the Argentine Republic, and it is not unlikely that future issues will find their way to the United States in increasing amounts.

TOTAL EXTERNAL DEBT.

The total outstanding debt of an external character, according to the Report of the Corporation of Foreign Bondholders, is as follows:

Character of securities.	Original amount.	Amount outstanding.
Ordinary issues.....	£86,192,658	£70,797,702
Special issues.....	34,744,390	30,219,122
National cédulas.....	77,732,389	47,378,356
Total.....	198,669,437	148,395,180

PROVINCIAL LOANS.

PROVINCE OF BUENOS AIRES.

The external loans of the Province of Buenos Aires, the original issues, and the approximate amounts outstanding are as follows:

Loans.	Original amount.	Amount outstanding.
3½ per cent Sterling Loan of 1907.....	£11,160,980	£10,060,980
5 per cent Sterling Loan of 1908.....	1,500,000	1,417,020
4½ per cent Railway Loan of 1909 and 1912.....	3,375,015	3,304,055
4½ per cent Loan of 1910.....	2,000,000	1,935,440
4½ per cent External Loan of 1910.....	3,500,000	3,381,032
4½ per cent Mar del Plata Loan of 1911.....	611,111	611,111
5 per cent La Plata Paving Loan of 1913.....	440,878	440,878
5 per cent Consolidated Gold Loan of 1915.....		541,905
5 per cent External Gold Loan of 1910.....	1,047,620	999,960

All loans issued by the Province of Buenos Aires prior to 1898 were in that year converted into 4 per cent bonds of the Argentine Government and appear under the special external debt of the Republic. The bonds are guaranteed by the Republic, but the Province of Buenos Aires is responsible to the nation and under obligation to refund the service to the Government. No attempt will be made in this report to review the early financial history of the Province.

The 3½ per cent loan of 1907 was issued by the provincial government in exchange for cédulas of the Provincial Mortgage Bank.

The interest rate for the first five years was 3 per cent per annum. An extraordinary sinking fund to be derived from sums due the Mortgage Bank was to be used to retire bonds and after 10 years an annual cumulative sinking fund of one-half per cent was to go into effect. The financial crisis brought about at the beginning of the European war compelled the Province to arrange a scheme with the bondholders whereby the latter would accept in payment for each 35s. semiannual coupon in 1915 10s. in cash and 25s. in 5 per cent funding certificates to be redeemable at par in 10 annual drawings commencing October, 1916. The coupons were to remain valid during the life of the funding certificates, and, in case of default in any of the conditions of the arrangement, the certificates were to be immediately receivable in payment of the territorial contribution and the produce tax of the Province, on which taxes the $3\frac{1}{2}$ per cent bonds are a lien. The 1916 coupons, according to the arrangement, were to receive 15s. in cash and 20s. in funding certificates.

The highest price recorded since January, 1911, for these bonds was $74\frac{1}{2}$ per cent, and the lowest since the outbreak of the war was 33 per cent. In April, 1917, the price was 44 per cent.

In March, 1915, the government of the Province announced that, in view of conditions then existing, it would be impossible to meet the interest and sinking fund on the $4\frac{1}{2}$ per cent loans of 1909, 1910 (French loan), and 1911 and on the 5 per cent loans of 1908, 1910, and 1913. The announcement further stated that the amortization of the loan would be suspended for two years and that the interest would be paid at the rate of 115 per cent into 5 per cent consolidated gold bonds, secured by a first charge on the taxes on alcohol and on commerce and industry, less a small portion already pledged for loans. The new bonds are redeemable by an annual sinking fund of 2 per cent commencing January, 1918. At the date of the announcement it was stated that the government would continue the service on the $4\frac{1}{2}$ per cent loan of 1910, issued in Berlin, Germany. This loan is secured on the \$25,000,000 shares of the Bank of the Province of Buenos Aires (held by the government) and by certain taxes.

The 5 per cent loan of 1908 was originally issued at 88 per cent, one-half in London and Berlin and one-half in Paris, to meet expenditures on drainage and canal works, etc. Its 1 per cent sinking fund commenced in 1910.

The $4\frac{1}{2}$ per cent railway loan of 1909 and 1912 was issued, one-third in London at $88\frac{1}{2}$ per cent and the remaining two-thirds in Paris, for the purpose of providing funds for the construction of two railways, one of which is assigned as security for the loan. The sinking fund of 1 per cent per annum commenced operations in November, 1913. The 1912 issue of the loan was made in Paris, making a total of 67,000,000 francs of this issue held in France. The 5 per cent external loan of 1910 was issued in London to provide funds for certain public improvements. The remainder of the loans were marketed in Paris. They are secured by various taxes assigned for their service.

The high, low, and recent prices for certain of these provincial loans since January 1, 1911, have been as follows:

Loans.	High.	Low.	Price January, 1913.
3½ per cent loan of 1907.....	74½	33	49
5 per cent loan of 1908.....	102	45	64
4½ per cent external railway loan.....	96½	38	56
5 per cent external loan of 1910.....	101½	45	63
5 per cent consolidated loan of 1915 <i>a</i>			68

a Issued to fund.

The internal debt of the Province is subdivided into several bond issues, practically all of which are listed on the Bolsa at Buenos Aires. The approximate total of this debt is as follows:

Loans.	Total outstanding.	Sinking fund.	Price September, 1917.
	\$ m/n	Per cent.	
5 per cent School, etc., loan (1900).....	2,205,800	1	75.00
6 per cent Conversion loan.....	7,504,450	1	88.00
6 per cent "Mont-de-Piété" loan.....	35,325,250	1	82.00
6 per cent School loan.....	5,749,100	1	76.00
6 per cent Health Works loan.....	8,837,000	1	81.00
5 per cent Bank of the Province loan.....	12,596,920	½	71.00
5 per cent Road Paving loan.....	7,924,000	1	.....
5 per cent Paving loan.....	1,125,200	1	.....
2½ per cent Savings Bank loans.....	8,246,400	½	31.70
Total.....	89,515,120		

PROVINCE OF CORDOBA.

This Province has outstanding an external loan, listed in London, which carries interest at the rate of 2½ per cent per annum until 1924, when the rate will be raised to 3½ per cent; the rates will then be advanced over a period of years to 3½ and 4 per cent. The bonds sell at approximately 40 per cent, and the amount outstanding is £703,800. The bonds are dated 1887-89.

PROVINCE OF CORRIENTES.

This Province, in the year 1910, issued £396,825 of 6 per cent external gold bonds in Great Britain and on the Continent. The British investors subscribed to approximately two-thirds of the total at 98 per cent. The loan is secured on railway mileage and on certain taxes. In August, 1915, the Province was unable to meet its coupons owing to existing conditions. Other coupons have since been unpaid. The bonds sell at about 70 per cent.

OTHER PROVINCIAL LOANS (INTERNAL).

Several of the other Provinces of the Republic have, from time to time, been borrowers in the local markets of Argentina. Space will

not permit a full study of the finances of these Provinces. A few of these loans are:

Loans.	Dated.	Interest.	Sinking fund.	Price September, 1917.
		<i>Per cent.</i>	<i>Per cent.</i>	
Consolidated debt, Province of Santa Fe.....	1886	6	1	81.00
Consolidated debt, Province of Santa Fe.....	1893	6	1	81.10
School bonds, Province of Santa Fe.....	1903	7	5	<i>a</i> 94.00
Public building bonds, Province of Santa Fe.....	1903	7	5	<i>a</i> 92.50
Consolidated debt, Province of Entre Rios.....	1903	5	1	69.90
School bonds, Province of Entre Rios.....	1909	6	2	61.00
Public funds, Province of Entre Rios.....	1905	5	1	50.00
Pavement bonds, Province of Mendoza.....	1909	8	20	<i>b</i> 89.50
Internal public debt, Province of Mendoza.....	1914	8	-----	76.00
Internal public debt, Province of Santiago del Estero.....	1914	8	-----	71.00
Loan of the Province of Tucuman.....	1905	6	4	<i>b</i> 89.90

a Dec. 31, 1913.

b December, 1912.

In addition to these internal loans and others of like character, the Provinces of Santa Fe, Tucuman, Mendoza, and San Juan have external loans outstanding. These are small loans, and, with the exception of 6 per cent bonds of the Province of San Juan, the interest rate is 5 per cent. All the loans are provided with sinking funds of from one-half to 1 per cent. No recent quotations are available.

A number of the Provinces are responsible for the service of the 4 per cent provincial and municipal debt bonds of the Republic. A brief description of these financial operations has been given in the section on national loans. In some instances security has been assigned for the payment undertakings.

MUNICIPAL LOANS.

The principal municipalities of Argentina that have sought loans abroad are Buenos Aires, Rosario, and Santa Fe, all of which have been borrowers in the European markets. Buenos Aires has, naturally, been the largest borrower and has secured—largely in Great Britain—considerable sums for municipal improvements. The most important of the Buenos Aires loans are the following:

Loans.	Original amount.	Amount outstanding.	Original price.	Price January, 1918.
			<i>Per cent.</i>	<i>Per cent.</i>
4½ per cent bonds of 1887.....	£1,984,120	£537,320	86½	73
5 per cent loan of 1909.....	<i>a</i> 2,976,180	<i>a</i> 1,453,663	98½	84
5 per cent loan of 1913-14.....	4,960,300	4,920,140	96	78

a The Government of Argentina has assumed this loan, which is secured by the proceeds from certain taxes.

In addition to assuming the responsibility for the 5 per cent loan of 1909, the Government considers the outstanding balance of the \$20,000,000 currency loan of 1891 among its internal obligations. The September, 1917, price for these bonds was 91.50. The Government is also responsible for the 6 per cent loan of 1897 (internal),

quoted at \$91 m/n in September, 1917. Other internal loans of the city are as follows:

Loans.	Rate.	Sinking fund.	Price, September, 1917.
	<i>Per cent.</i>	<i>Per cent.</i>	
Loan of 1882.....	6	1	95
Theater Colon loan.....	6	1	85
Pavement loan, 1904.....	5	1	80
Pavement loan, 1910.....	5	7	73
Municipal certificates.....	7	-----	92

The municipality of Rosario has outstanding £1,982,775 bonds of an issue of £2,000,000 4 per cent gold external bonds, guaranteed principal and interest by the Province of Santa Fe. The bonds were originally issued in 1887 and in 1889, and were placed on a full interest basis in 1913. The direct tax of the Province of Santa Fe has been assigned as security. A recent price is 46 per cent. Two internal loans are also obligations of the municipality. One bears interest at 7 per cent and has a sinking fund of 1 per cent, and the other bears interest at 6 per cent and carries a 2 per cent sinking fund. The latter bonds were quoted at 71.50 in May, 1915.

In 1889 the city of Santa Fe issued bonds to the amount of £257,900 at 6 per cent. These bonds defaulted in 1891 but part of the arrears were made up through the issuance of £42,100 sterling funded coupon bonds. From 1905 to 1915 interest was paid at the rate of 4 per cent per annum in Argentine currency, and from September, 1915, at the rate of 6 per cent per annum, also in currency. The latest £3 semi-annual coupon realized £1 6s. The bonds and the sterling coupon bonds were quoted, in January, 1918, at about 26 per cent of par (£100). The original offering price was 95 per cent.

BANKS AND BANKING.

Considerations of space will make it impracticable to give a fully detailed account of banks and banking methods in Argentina. Brief mention will be made, however, of a number of the important local and foreign institutions in the banking field, and the subject of banking in the Republic will be discussed in a general way.

The history of the banks in Argentina virtually began with the establishment of the *Compañía del Banco de Buenos Aires*, on September 6, 1822. The original capital consisted of 225 shares of the par value of 1,000 pesos, this amount being increased to 466 shares in the following year. A dividend of 18 per cent resulted from the first year's operations. In 1826 the bank was incorporated into the *Banco de las Provincias Unidas del Rio de la Plata*. In 1836 this somewhat unwieldy title was changed to *Casa de Moneda*, and later to *Banco de la Provincia de Buenos Aires*.

Between 1862 and 1872 several banks began operations, among them the *London & River Plate Bank*. At the close of the nineteenth century there were 42 banks of all classes in Argentina; by January 1, 1906, this total had increased to 67, and to-day the number is about 150. Employees of banks number more than 12,000.

BANK OF THE ARGENTINE NATION.

The Bank of the Argentine Nation (Banco de la Nación Argentina), with head offices at Buenos Aires and branches throughout the Republic, is the official Government financial institution. It dates from the year 1891, when it began business with a capital of \$50,000,000 m/n. In 1905 the capitalization amounted to \$100,000,000 m/n. At the present writing the capitalization stands at \$128,000,000 m/n. Cash reserves amount to \$39,672,331 o/s and \$356,349,582 m/n, and deposits amount to \$7,621,624 o/s and \$785,403,037 m/n. The bank is allowed to make loans to no Government except that of Argentina, and may loan to the National Government only to the extent of 20 per cent of its capital. The bank must hold on deposit a conversion fund, in gold, to which the Government contributes out of the revenues. This gold reserve is held against the paper currency which was issued previous to the passing of the conversion law and which remains in circulation. One-half of the profits of the bank is to be applied to the increase of capital and one-half is to be converted into gold to be credited to the reserve. The following table illustrates the growth of the institution:

Years.	Deposits.		Discounts and advances.		Cash reserves.	
	\$ o/s.	\$ m/n.	\$ o/s.	\$ m/n.	\$ o/s.	\$ m/n.
1902.....	1, 674, 217	92, 666, 380	6, 618	77, 647, 435	8, 244, 892	42, 790, 796
1907.....	4, 939, 514	123, 773, 866	2, 050, 656	214, 022, 278	18, 618, 100	55, 075, 452
1912.....	5, 290, 593	420, 622, 407	1, 884, 630	415, 429, 677	37, 802, 050	130, 660, 991
1913.....	10, 489, 372	517, 543, 791	1, 883, 733	541, 383, 242	32, 272, 702	180, 056, 991
1914.....	9, 723, 293	583, 313, 147	924, 366	605, 411, 541	28, 641, 226	194, 147, 851
1915.....	4, 212, 518	663, 229, 627	454, 644	422, 361, 077	10, 759, 652	379, 135, 455
1917.....	7, 621, 624	785, 403, 037	243, 272	476, 528, 216	39, 672, 331	356, 349, 582

CONDITION AND GENERAL CHARACTER OF ARGENTINE BANKS.

The table on the next page shows the condition of the various banks doing business in the city of Buenos Aires on June 30, 1917:

Banks.	Deposits in current ac- counts and savings banks.		Discounts and advances.		Cash reserves.		Capital subscribed or cor- responding to Argentine Republic.
	\$ o/s	\$ m/n	\$ o/s	\$ m/n	\$ o/s	\$ m/n	
German Transatlantic.....	1,181,177	38,130,091	1,001,291	24,794,916	1,731,913	12,393,308	3,650,000
Anglo-South American.....	289,928	31,246,607	799,018	34,658,134	236,687	9,010,084	2,475,000
British of South America.....	712,056	53,418,910	723,057	28,389,769	3,091,735	14,732,627	4,536,000
Italian Commercial.....	470,971	19,817,428	87,537	18,541,186	153,151	6,211,533	5,000,000
Spain and America.....	.....	865,855	.....	1,199,291	.....	417,621	1,282,440
Spanish of the River Plate.....	826,968	183,021,949	544,034	206,104,313	2,101,668	57,000,796	98,146,200
French and Italian.....	182,130	26,783,915	162,137	19,227,733	330,610	5,981,788	2,500,000
Galicia and Buenos Aires.....	46,756	20,141,038	283	27,704,129	52,716	4,851,887	16,968,120
German of South America.....	497,095	16,820,346	119,375	16,469,686	322,851	5,185,206	.....
Dutch of South America.....	8,360	27,625,340	53,259	30,019,932	734,081	9,384,409	3,905,833
Italy and River Plate.....	930,625	87,625,925	1,181,014	103,584,208	1,189,256	21,055,771	10,000,000
Italian-Belgian.....	41,124	25,669,899	.....	11,979,318	46,853	9,644,316	1,000,000
London and Brazil.....	304,678	20,446,963	600,739	9,951,316	760,517	3,896,837	1,950,000
Bank of the Argentine Nation ^a	2,640,084	146,516,823	632,863	67,033,234	5,505,711	58,826,536	128,000,000
New Italian.....	6,834,502	814,950,927	178,193	485,092,960	39,045,984	351,621,252	6,000,000
Argentine Popular.....	173,507	50,578,951	54,749	44,739,740	275,157	13,857,691	10,514,565
Province of Buenos Aires ^b	665,170	22,156,427	519,577	33,728,423	715,939	3,726,383	62,412,140
National City Bank of New York.....	1,602,099	197,409,998	315,773	176,755,875	3,338,311	64,716,867	2,855,494
Four banks with less than \$1,000,000 m/n capital.....	33,817,672	645,222	.....	25,434,815	1,051,125	8,782,667	1,924,045
Total.....	17,313,607	1,817,720,296	6,972,909	1,367,293,765	60,716,285	661,355,679	339,266,600
Total in May.....	17,518,861	1,766,968,694	7,473,854	1,349,527,413	61,126,544	646,053,466	348,056,054

^a Including judicial deposits \$96,074 o/s and \$67,873,214 m/n and Cámara Compensadora (Clearing House) \$5,062,633 o/s and \$89,875,455 m/n.

^b Including judicial deposits \$1,746 o/s and \$19,410,427 m/n.

The following table shows the condition of the Buenos Aires banks, taken together, at the end of each of the first six months of 1917 and at the end of June, 1916:

Dates.	Deposits.		Discounts and overdrafts.		Cash balances.	
	\$o/s	\$m/n	\$o/s	\$m/n	\$o/s	\$m/n
January 31, 1917	15,422,449	1,646,104,070	9,116,503	1,298,291,275	45,748,181	612,443,566
February 28, 1917	15,281,050	1,687,745,464	9,609,452	1,348,115,864	53,533,475	640,055,371
March 31, 1917	16,998,576	1,733,495,947	8,519,445	1,344,081,602	59,444,981	654,909,283
April 30, 1917	19,422,635	1,735,769,186	7,916,534	1,350,447,209	63,096,179	637,190,746
May 31, 1917	17,518,861	1,766,968,694	7,473,854	1,349,527,413	61,126,544	646,053,466
June 30, 1917	17,313,607	1,817,720,296	6,972,909	1,367,293,765	60,716,285	661,355,679
June 30, 1916	14,646,695	1,528,645,300	6,698,370	1,219,014,825	28,268,521	652,271,912

The issuance, exchange, and conversion of the paper currency of the Argentine Republic is dealt with by the Government Office for the Conversion of Currency (Caja de Conversión), which is under the control of the Minister of Finance. This institution holds the supply of gold reserved as guarantee for the convertible value of the paper currency that it issues. Statements are regularly issued by the institution showing the total circulation of paper currency, the stock of gold in the Caja de Conversión and the amounts of gold deposited in foreign countries. As of June 30, 1917, it was stated that \$261,592,511 gold was held in the Caja de Conversión and \$55,254,373 abroad.

Quotations and dividend records of several important local banks will be found in the Appendix (p. 497) among the lists of securities quoted on the Bolsa at Buenos Aires.

Among the most important banks of the Republic is the Spanish Bank of the River Plate (Banco Español del Río de la Plata), in which \$98,065,340 m/n has been invested. The par value of the shares is \$100 m/n, and a recent selling price was 115 per cent. The subscribed capital now amounts to \$100,000,000 m/n (£8,730,158). The bank was established in 1882, the head office being located at Buenos Aires. There are 48 branches in the principal cities of Argentina, as well as 3 in Brazil (Rio de Janeiro, Santos, São Paulo), 1 in Montevideo, Uruguay, and 10 in Europe.

The Argentine Popular Bank (Banco Popular) is another important local institution. The bank was established in 1887 and, as shown by the above table of deposits, etc., has become a power in the Argentine Republic. Previous to the war the bank paid dividends of from 12 to 14 per cent. For the fiscal year ended June 30, 1916, the rate was 9 per cent. The \$20 m/n shares were quoted in September, 1917, at \$26 m/n.

The Bank of the Province of Buenos Aires (Banco de la Provincia de Buenos Aires), which, as already stated, is the oldest bank in the Republic, has its head office at La Plata and branches in Buenos Aires and elsewhere. The \$100 m/n shares were quoted in September, 1917, at \$125 m/n, a rise of 17 points from the low price of the year. The dividend for the year 1916 was at the rate of 6½ per cent, as compared with 10 per cent per annum paid during the three years prior to the war.

The New Italian Bank (Nuevo Banco Italiano) is one of the most profitable banks in the Republic. It was founded in the year 1887,

and its dividend record has been a most substantial one. In 1911, 20 per cent was paid; in 1912, 22 per cent; in 1913, 23 per cent; and in 1914, 18 per cent. The rate for the fiscal year 1915-16 was 12 per cent. The shares, which have a par value of \$100 m/n, have sold between 205 and 215 per cent during 1917.

The Italian Commercial Bank (Banco Comercial Italiano), incorporated in 1898, has for years paid moderate dividends. Its \$100 m/n shares sold in September, 1917, at approximately par. The head office of the institution is in Buenos Aires.

The important provincial banks of the Republic are:

Banks.	Date founded.	Capitaliza- tion.
Bank of the Province of Santa Fe.....	1874	\$m/n 2,426,734
Bank of the Province of Salta.....	1884	
Bank of the Province of Mendoza.....	1888	33,254,481
Bank of the Province of San Juan.....	1888	3,122,121
Bank of the Province of Tucuman.....	1888	4,488,481
Bank of the Province of Catamarca.....	1889	287,490
Bank of Cordoba.....	1902	6,429,931

ITALIAN COMMERCIAL BANK.

The Italian Commercial Bank has been a most progressive institution, as will be indicated by the following table:

Years.	Capital paid in.	Deposits.	Reserves.	Divi- dends.
	\$m/n	\$m/n	\$m/n	Per cent.
1899.....	151,365	171,934		
1904.....	500,925	1,119,210		
1909.....	1,045,582	4,067,839	130,073	
1910.....	3,005,380	6,908,885	235,179	6½
1911.....	3,782,370	7,944,419	305,722	8
1912.....	4,407,690	10,633,792	501,729	9
1913.....	4,783,350	11,335,995	654,547	9
1914.....	4,995,860	10,714,219	748,729	7
1915.....	4,998,120	14,849,066	789,919	6½
1917 a.....	5,000,000	b18,070,675	c 700,000	c4

a April 30, 1917.

b Also \$515,614 gold.

c Year '916.

Discounts and advances as of June 30, 1917, amounted to \$87,537 o/s and \$18,541,186 m/n.

ARGENTINE POPULAR BANK.

As a typical illustration of the development of banks in the city of Buenos Aires, reference may be made to the Argentine Popular Bank. This institution, founded in 1887, has increased its capital since the year of its incorporation from \$980,500 m/n to \$1,014,511 m/n. There are 3,505 holders of the bank's shares—2,626 being of Argentinian nationality, 302 Italian, 226 Spanish, 390 British, 117 French, 75 Uruguayan, 44 German, 4 American, 3 Serbian, etc. Of the holders, 602 are merchants, 222 engaged in agricultural pursuits, 144 lawyers, 103 doctors, 62 engineers, 57 journalists, 531 engaged in domestic occupations, etc. In addition to its shares, the bank has outstanding approximately \$930,000 o/s 5 per cent bonds and \$1,472,-

500 m/n debentures. The following table illustrates the increases in deposits and capitalization:

Years.	Deposits.	Capital.	Annual profits.
	<i>\$m/n</i>	<i>\$m/n</i>	<i>\$m/n</i>
1888.....	838,387	980,500	34,208
1893.....	2,305,225	1,121,980	(c)
1898.....	3,069,448	1,754,140	217,528
1903.....	5,934,585	2,823,100	(c)
1908.....	8,243,840	4,603,380	687,830
1912.....	17,266,225	9,732,720	(c)
1913.....	21,832,875	10,073,300	1,594,573
1914.....	22,348,844	10,509,860	1,531,681
1915.....	20,966,880	10,519,520	1,080,972
1916.....	21,434,938	10,515,180	1,098,672
1917 ^a	22,258,989	10,514,511	(c)

^a May 7, 1917.

^b Also \$655,589 gold.

^c Not obtainable.

The annual dividends paid during recent years on the shares of the Popular Bank have varied from 9 to 13 per cent. In 1915 and 1916 the annual rate was 9 per cent. As will be seen from the above table, the bank, since the outbreak of the European war, has shown decreased profits and paid smaller dividends—a condition that has prevailed generally among the banks of Argentina.

SPANISH BANK OF THE RIVER PLATE.

As an indication of the general decrease in profits that followed the breaking up of the pre-war boom in Argentina, the earnings and profits of the Spanish Bank of the River Plate—one of the strongest and best-managed institutions of its kind in the country—are shown (fiscal year ended June 30):

Items.	1914	1915	1916
	<i>\$m/n</i>	<i>\$m/n</i>	<i>\$m/n</i>
Net earnings.....	12,563,099	4,412,718	5,497,241
Expenses.....	7,131,288	2,176,340	2,725,481
Profits.....	5,431,811	2,236,378	2,771,760
Dividends, etc.....	5,362,654	2,177,982	2,726,201
Credit to P. & L.....	69,157	58,396	45,049

During the year preceding the preparation of this report there has been a steady advance toward normal prosperity, as shown by the fact that the bank's shares were selling in September, 1917, at 115, an advance of 11 points as compared with the low price for the year. In 1914, before the war, the high price was 125. Between June 30, 1916, and April 30, 1917, deposits increased as follows: June 30, 1916, \$149,256,145 m/n; April 30, 1917, \$832,474 o/s and \$174,960,192 m/n.

GERMAN TRANSATLANTIC BANK.

It is interesting to note the deposits in the German Transatlantic Bank (Banco Alemán Transatlántico), which is much the largest and most important German bank in the field, for the years preceding and following the outbreak of the war. The table refers to deposits in Argentina only:

Years.	Deposits.	Discounts.	Reserves.
	<i>\$m/n</i>	<i>\$m/n</i>	<i>\$m/n</i>
1906.....	30,785,000	41,602,000	9,869,000
1910.....	57,889,000	58,690,000	15,130,000
1911.....	60,057,000	65,400,000	16,960,000
1912.....	61,890,000	66,880,000	17,975,000
1913.....	57,760,000	60,735,000	19,200,000
1914.....	36,191,000	35,698,000	15,341,000
1915.....	38,866,000	33,700,000	13,380,000
1917 ^a	b 37,000,000	b 27,000,000	b 14,500,000

^a April 30, 1917.^b Estimated; approximately correct.

The capital employed by the German Transatlantic Bank in Argentina as of April 30, 1917, amounted to \$3,650,000 o/s, equal to approximately \$8,000,000 m/n.

BRITISH BANKS IN ARGENTINA.

The British banks in Argentina are:

Banks.	Capitali- zation.	Reserves.	Divi- dends.	Approx- imate capital in Arg- entina.	Par value of shares.	High price since 1911.	Price Jan- uary, 1918.
London & River Plate Bank.....	£1,800,000	£2,000,000	<i>Per ct.</i> 15	£900,000	<i>a</i> £25 <i>b</i> £15	64	37
London & Brazil Bank ...	1,250,000	1,400,000	20	450,000	<i>a</i> 20 <i>b</i> 10	37	24
Anglo-South American Bank.....	2,250,000	1,500,000	10	1,000,000	<i>a</i> 10 <i>b</i> 5	10½	7½
British Bank of South America.....	1,000,000	1,000,000	22	900,000	<i>a</i> 20 <i>b</i> 10	32½	19

^a Total amount that may be called.^b Amount paid in.

The British banks have been powerful factors in trade development between Great Britain and Argentina. Furthermore, as the dividend record shows, they have been highly profitable. During the great boom that reached its climax in 1913 three banks paid even larger dividends than at present. The London & River Plate Bank paid 20 per cent in each of the years from 1910 to 1913; the London & Brazil Bank paid 22 per cent in 1910; the Anglo-South American Bank paid 12 per cent in the years 1910, 1911, and 1912; the British Bank of South America is maintaining its maximum dividend rate, which, as indicated, is very substantial.

Both the London & River Plate Bank and the London & Brazil Bank date from the year 1862; the British Bank of South America was founded in 1863 and the Anglo-South American Bank in 1888. The last-named institution holds an interest in the Bank of the Province of Buenos Aires, in the Commercial Bank of Spanish America, in the Bank of Peru & London, and in other banks. Although its largest business is in Chile, where 11 branches are maintained, the Argentine Republic claims a very substantial portion, there being 7 branches in that country (the most important, of course, being at Buenos Aires). There is also a branch in Montevideo, Uruguay. Nearly three-quarters of the London & River Plate Bank's South American business is handled in Argentina, where 14 branches are maintained. The bank's business during recent years

has been most excellent, although there was a slight reduction in profits in the early days of the war.

The London & Brazil Bank is an institution that does its principal business in Brazil. Nevertheless, the two branches in Argentina handle a very substantial gross business and return a considerable profit. The bank maintains 14 branches, including 11 in Brazil and 1 in Montevideo, Uruguay. The British Bank of South America maintains two branches in Argentina, one in Uruguay, and three in Brazil; more than one-half of the business is handled by the two Argentina branches.

OTHER FOREIGN BANKS.

Among other nations represented in the banking field are Italy, France, the Netherlands, and the United States. The National City Bank, of New York, the American pioneer in the field, has steadily developed its Buenos Aires branch, as will be indicated by the fact that on April 30, 1917, the bank stood eighth in the total amount of deposits among the 26 large banks in Buenos Aires. Other American banks that have entered the field are the First National Bank of Boston and the Guaranty Trust Co. of New York. Many other American institutions have established close relations with existing banks in Argentina.

INTEREST RATES PAID.

The interest rates paid to depositors in Argentina are somewhat lower than in most Latin-American countries. The Bank of the Nation allows no interest on current accounts, 2 per cent on 90-day deposits, 3 per cent on 180-day deposits, 4 per cent on savings-bank deposits of at least 60 days' duration for amounts up to \$5,000, and 3 per cent for amounts between \$5,001 and \$10,000. The London and Brazil Bank, Buenos Aires branch, allows 1 per cent on current accounts up to \$200,000 m/n, $3\frac{1}{2}$ per cent on three-months fixed deposits, 4 per cent on six-months fixed deposits and on savings-bank deposits, \$10 to \$10,000 m/n. This bank charges 9 per cent on overdrafts in accounts current, as compared with 8 per cent charged by the Bank of the Nation. The London & River Plate Bank and the British Bank of South America do not allow interest on current deposits. On fixed deposits at three months both institutions allow 3 per cent, and on fixed deposits at six months $3\frac{1}{2}$ per cent is allowed. The savings-bank rate is 3 per cent.¹

INSURANCE COMPANIES.

Argentina as an insurance field has attracted attention from all parts of the world. No fewer than 26 British companies are represented in Argentina, as well as 3 German, 3 American, 2 French, and 1 each from Switzerland and Brazil. In addition to a number of

¹ Persons desiring additional information with regard to banking in Argentina may be referred to two monographs previously issued by the Bureau of Foreign and Domestic Commerce. These are Special Agents Series No. 90, "Banking and Credit in Argentina, Brazil, Chile, and Peru," by Edward N. Hurley, and Special Agents Series No. 106, "Banking Opportunities in South America," by William H. Lough. These publications may be obtained for 10 and 20 cents, respectively, from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the district or cooperative offices of the Bureau of Foreign and Domestic Commerce.

See also the Appendix of the present monograph, page 538.

cooperative societies, there are 58 or more local companies handling various lines of insurance. Space will not permit a full description of these companies, and mention will be made of only a few concerns. The following table will indicate the dividends paid in 1916 and the value of the shares of these companies:

Companies.	Approximate capitalization.	Par value of shares.	Price of shares.	Dividend, 1915.
	\$m/n	\$m/n	\$m/n	Per cent.
La Franco-Argentina.....	1,500,000	50	117	a 16
La Hispano-Argentina.....	700,000	100	.....	a 20
La Inmobiliaria.....	2,000,000	100	275	10
La Positiva.....	1,000,000	5,000	12,000	10
La Estrella.....	2,000,000	100	.....	8
La Economía Comercial.....	250,075	100	.....	15

a Rate for 1916; a similar rate was paid in 1915 and a similar or larger rate in previous years.

Among the various other companies one may mention La America (average dividend 8 to 11 per cent), España & Rio de la Plata (average dividend 10 per cent), La Equiteva del Plata (average dividend 10 per cent), La Mundial (dividend 25 per cent), La Rosario (dividend usually 10 per cent), La Unión Mercantil (dividend 10 to 12 per cent), La Sud America (dividend 10 per cent), and Unión Comerciantes (fire and hail, dividend 22 per cent). These companies are capitalized at from \$300,000 m/n to \$2,000,000 m/n and are representative companies.

Premium income for the year 1914 for the various companies amounted to \$34,616,192 m/n, of which \$22,828,435 m/n was earned by the local companies and \$11,787,757 m/n by the foreign companies. The sums insured in 1914 amounted to \$1,434,323,116 m/n for the local companies and \$1,620,414,125 m/n for the foreign companies. Of this total, \$1,183,395,030 m/n and \$1,452,827,862 m/n represented fire insurance, and \$72,727,147 m/n and \$143,310,777 m/n marine insurance.

Foreign insurance companies pay a higher rate of taxation on premiums, as well as a greater sum for trading licenses, than the local companies. The former are also compelled to deposit the sum of \$300,000 m/n with the Caja de Conversión or Banco de la Nación as security for the fulfilment of their obligations. Additional sums must also be deposited in the event that more than one branch of insurance is to be handled. The \$300,000 m/n may be in the form of bonds of the Government of Argentina. Foreign companies pay a tax of 2 per cent on life insurance and workmen's compensations, as compared with one-half per cent paid by the local companies. On fire, marine, and accident insurance the rate is 7 per cent for foreign companies and 1.4 per cent for local companies. There is no tax on agricultural insurance. The taxes paid by the insurance companies produce an annual revenue to the Government slightly in excess of \$1,000,000 m/n. In addition to taxes, as above, there are license fees varying from \$2,000 m/n to \$10,000 m/n.

All the foreign companies have their main offices in Buenos Aires. Of the local companies 41 have their domicile in that city and the remainder in Rosario, Cordoba, Mendoza, Tucuman, and elsewhere.

RAILWAY DEVELOPMENT.

Argentina is provided with a system of railways, splendidly constructed and well supplied with excellent equipment, that spreads its way throughout all settled sections of the Republic. Around this network of lines is built the economic structure of the entire Republic. The growth and development of the railway lines is shown by the following table:

Years.	Length.	Capital invested.	Passengers.	Freight.	Receipts.	Expenses.
	<i>Miles.</i>	<i>£ o/s.</i>		<i>Metric tons.</i>	<i>£ o/s.</i>	<i>£ o/s.</i>
1865.....	155	5,379,898	747,684	71,571	563,134	438,961
1880.....	1,563	62,964,486	2,751,570	772,717	6,560,417	3,072,185
1890.....	5,861	321,842,815	10,069,606	5,420,782	26,049,042	17,585,409
1900.....	10,292	541,575,623	18,296,422	12,659,831	41,401,348	23,732,754
1910.....	17,392	900,430,051	59,014,600	33,606,626	110,941,406	65,929,627
1911.....	19,619	1,084,600,000	67,457,432	32,338,263	116,434,244	71,601,264
1912.....	19,793	1,120,210,000	73,212,084	38,869,804	129,700,178	81,348,088
1913.....	20,805	1,210,475,331	80,279,940	43,038,082	142,233,334	89,419,518
1914.....	a 21,398	1,236,723,022	81,745,535	35,378,830	118,751,420	80,474,190

a As of December 31, 1917, approximately 22,500 miles of line were open for traffic.

The valuation of the privately-operated railways is now placed at \$1,219,846,313 o/s, while the lines owned by the Government represent an investment of approximately \$153,000,000 o/s. Great Britain has approximately \$1,000,000,000 o/s invested in the privately-owned lines, while France has the next largest sum at stake. As of December 31, 1915, there were 7,086 locomotives, 6,279 passenger-train cars, and 161,669 freight and service cars in service throughout the Republic.

All the successful railway lines in the Republic have their terminals either at Buenos Aires or at one of the other ports. This is the natural route of practically all traffic and will probably continue to be so for many years. The passenger density at Buenos Aires is very great, as may be gauged by the fact that no fewer than 500 out-bound passenger trains leave the city daily.

The first railway in operation in Argentina was a 6-mile line extending from Buenos Aires to San Jose de Flores, chartered January, 1854, and constructed for the Sociedad Anónima del Camino Ferrocarril al Oeste. The line was opened to the public in January, 1857. The equipment consisted mostly of second-hand locomotives and cars that had been used at the siege of Sebastopol in the Crimea and had been constructed for an extremely broad gauge—namely, 5 feet 6 inches. The line was laid to accommodate these cars, and subsequent construction of this and other important railways has been carried on along similar lines.

During the first year of its existence the 6-mile railway earned \$19,185 gross, its expenses totaling \$12,448. The road and equipment cost \$285,108. To-day the railway forms an important part of the Buenos Aires Western Railway, which will be discussed hereafter.

The first really important railway line in Argentina was constructed during the sixties by William Wheelwright, an American, famous as the founder of the Pacific Steam Navigation Co., and the builder of other railway lines in South America. This line, which

to-day forms a portion of the Central Argentine Railway, extends from Rosario to Cordoba, 246 miles.

Most of the earlier railway lines carried guaranties of interest by the Government—some as high as 7 per cent per annum. In 1895 these guaranties were relinquished by mutual consent, the Government issuing to the railways 4 per cent rescission bonds in settlement thereof. These bonds are described in the section on Government loans.

In 1907 the Government passed what is known as the Mitre law, whereby railways, in lieu of customs duties and national and provincial taxes until 1947, pay to the Government 3 per cent of the net receipts, based on 60 per cent working expenses. This sum is used wholly to improve and construct roads and bridges to and from stations in the towns and districts served by the respective railways. The Government has the right to alter tariffs if the gross earnings of the railway, with operating expenses at 60 per cent, exceed 17 per cent on the recognized capital for three consecutive years.

The railway lines of Argentina have the right to construct extensions or branch lines, not to exceed 75 kilometers (47 miles) in length, without having to apply to the Government for permission, provided these lines are not within 20 kilometers (12½ miles) of any existing railway line belonging to another company. Several of the railways have taken advantage of the right to construct irrigation works adjacent to or near their lines, receiving payment therefor in Government 5 per cent bonds at par.

Owing to the increased cost of operation, the Government, late in 1917, granted permission to the railways to increase their tariffs 22 per cent.

CENTRAL ARGENTINE RAILWAY.

In discussing the important subject of railways it is necessary to give a brief history of the development of several of the most important systems of the Republic, beginning with the lines converging at Buenos Aires. Mention will first be made of the Central Argentine Railway. This is one of the longest and most important of the railways, serving as it does the larger cities and towns of the northern and central sections of Argentina, including Buenos Aires, Rosario, Cordoba, Santa Fe, Tucuman, etc., and crossing some of the best grain and cereal lands in the country. The railway to-day has a mileage of 3,305 and possesses the finest station and terminal in South America. From this, the Retiro Station, the main trunk line extends northward to Tucuman, a distance of 720 miles, running through the Provinces of Buenos Aires, Santa Fe, Santiago del Estero, and Tucuman. A number of divisional lines extend into the Province of Cordoba or act as feeders throughout the Provinces mentioned.

As previously stated, William Wheelwright, of the United States, constructed the Rosario-to-Cordoba section of this railway. He requested the concession at as early a date as 1854 and carried out a survey of the line under the supervision of Allan Campbell, also an American. Mr. Campbell's name is also identified with various early railway projects on the west coast of South America. Owing to the difficulty of obtaining financial aid, it was not until 1863 that the construction of the line was begun. The first section was completed in 1864 and the line to Cordoba in 1870.

From this somewhat modest beginning the system has been extended year by year. In 1903 the Buenos Aires & Rosario Railway was acquired, although the Government did not sanction the acquisition until 1908. This increased the mileage of the railway to 2,400 miles, and since that date another 900 miles has been added. At the outbreak of the war the company was carrying out an elaborate program of extensions. This expansion work has for the moment been curtailed but will doubtless be resumed when peace is established in Europe.

The principal freight traffic consists of cereals, but sugar, timber and firewood, live stock, wool, hides, hay, lime, and numerous other articles are also handled. The passenger traffic is very heavy, especially the suburban traffic. In view of this fact it was decided to electrify the lines adjacent to Buenos Aires for approximately 28 kilometers (17 miles). The system adopted provided for the multiple unit, third rail, and direct current, 800 volts. The company maintains its own power plant. Extensive workshops are maintained at Rosario and Perez, the latter only recently constructed. The Retiro Station at Buenos Aires has a frontage of 160 meters (525 feet) on the Avenida Maipu. The train shed contains 74,000 square meters (796,536 square feet), and 1,937 passenger trains are handled during one week at this terminal. The annual average number of passengers handled at the station exceeds 9,000,000.

There are a total of 409 stations on the railway and the equipment totals 679 locomotives, 787 passenger-train cars, 18,592 freight-train cars, and 836 service cars. Through express passenger service is maintained between Buenos Aires, Rosario, Tucuman, etc., and connections are afforded with the through Government line running to the Bolivian frontier at La Quiaca. The record year's passenger traffic was in 1913, when 21,721,273 passengers were carried—an average of 59,570 per day. About 9,000,000 tons of freight are handled, as well as about 2,000,000 head of cattle and other live stock. The growth of this great system during recent years is illustrated by the following table:

Items.	1902-3	1912-13	Increase.
			<i>Per cent.</i>
Average miles operated.....	2,316	2,994	29.3
Number of passengers carried.....	7,070,289	21,721,273	207.2
Tons of goods carried ^a	3,939,757	9,449,209	139.8
Tons of live stock carried.....	300,932	654,895	117.6
Gross receipts.....	£2,796,296	£6,489,346	132.1
Net receipts.....	£1,389,072	£2,770,411	99.4
Train miles.....	5,042,089	10,314,245	104.6
Accumulated reserve funds.....	£643,897	£2,173,138	237.5

^a Includes company freight.

^b June 30, 1912; amount larger on June 30, 1913.

During the years 1911-12 to 1917-18 the gross receipts have been as follows:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1911-12.....	2,870	£5,223,815	1915-16.....	3,304	£5,737,093
1912-13.....	2,994	6,489,346	1916-17.....	3,305	5,237,700
1913-14.....	3,151	6,058,140	1917-18.....	3,305	6,158,290
1914-15.....	3,286	5,755,254			

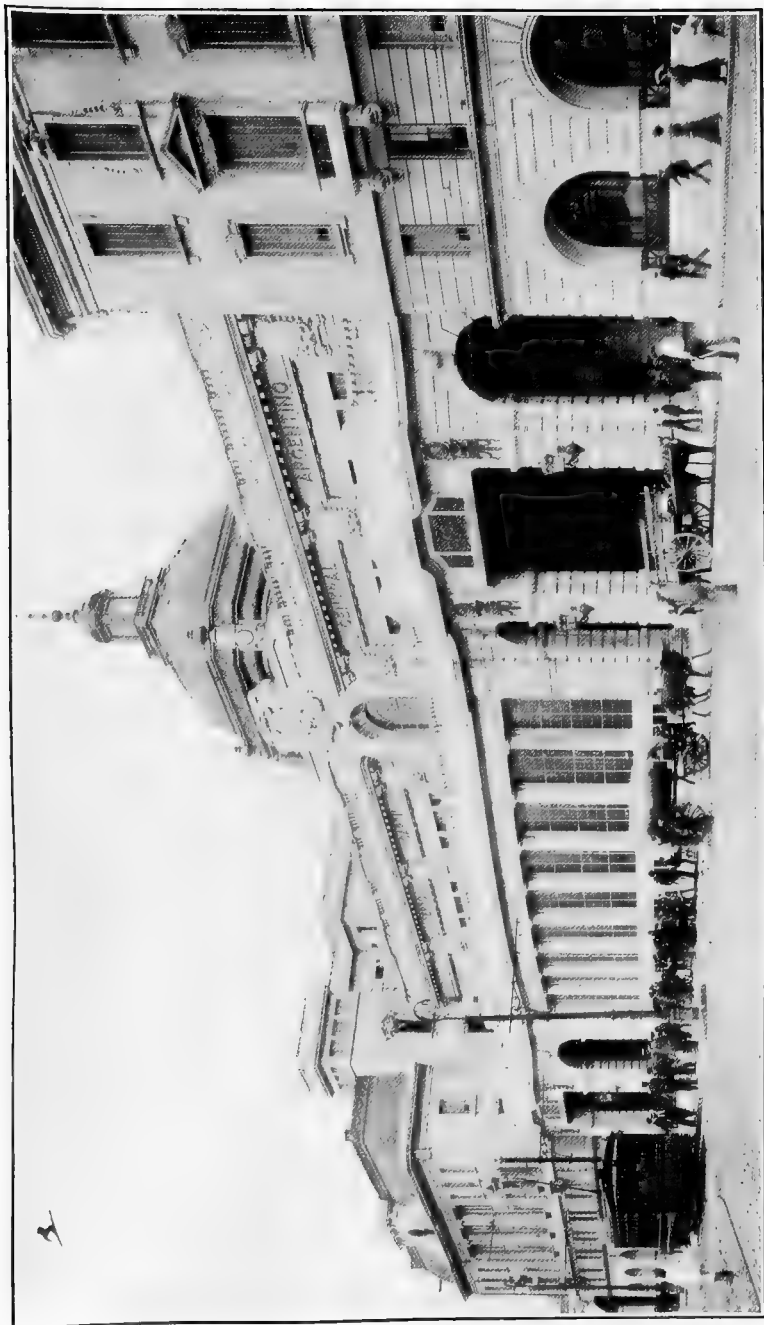


FIG. 2.—RETIRO STATION, CENTRAL ARGENTINE RAILWAY, BUENOS AIRES.

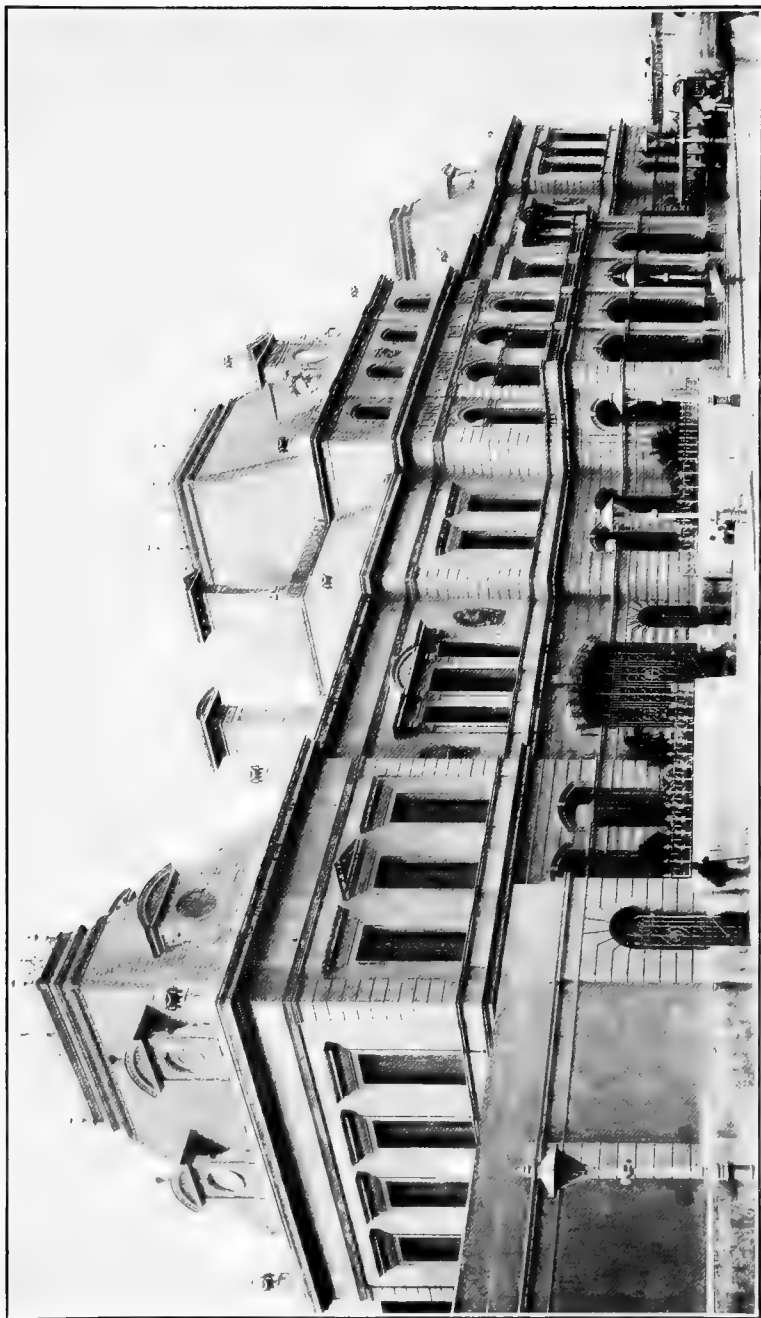


FIG. 3.—PLAZA CONSTITUCION STATION, BUENOS AIRES GREAT SOUTHERN RAILWAY.

The capitalization of the company consists of £28,196,950 consolidated ordinary stock, £811,800 deferred stock, £9,695,715 preference $4\frac{1}{2}$ per cent stock, £13,436,764 debenture stock (4 per cent), £113,564 Central debenture stock, £2,017,500 Western annuity, \$15,000,000 6 per cent notes (sold in the United States), and £500,000 6 per cent five-year notes, due September, 1922. For several years prior to the outbreak of the war in Europe dividends of 6 per cent were paid on the consolidated ordinary stock. This has been subsequently reduced.

The 6 per cent notes sold in the United States are dated February 1, 1917, and due February 1, 1927. They are payable in United States gold and are convertible into consolidated ordinary stock at par. The issue was offered by a syndicate of American bankers at par and interest. In July, 1918, they were quoted at 81.

The gauge of the railway is 5 feet 6 inches, the rails in the main track are of various weights up to 90 pounds, and the ties are of steel and hardwood.

Central Argentine consolidated ordinary stock, listed on the London Stock Exchange, sold as high as 120 in 1906 and above 110 on several occasions between 1910 and 1914. At the closing of the stock exchange July 27, 1914, the price was 92. In January, 1918, the price was 60. The deferred stock sold January, 1918, at 40—a price far below normal. The lack of a market outside of London has been a partial cause of the general decline in the company's securities. The 4 per cent debenture stock sold as high as $109\frac{1}{2}$ since 1911; the price January, 1918, was 70. (par £100).

BUENOS AIRES GREAT SOUTHERN RAILWAY.

Equal in importance to any of the railways of Argentina is the Buenos Aires Great Southern Railway (which, like most of the large systems, is British owned), operating approximately 3,792 miles of road, extending from Buenos Aires to the south and southwest through vast areas of rich country fully or partly developed. The railway was first opened for service late in 1865 between Buenos Aires and Chascomus, 114 kilometers (71 miles). At that period the railway owned 5 locomotives, 19 passenger cars, and 124 other cars, and the capitalization was £750,000. To-day the system has grown to a total mileage of 3,793, with 679 locomotives, 739 passenger cars, and more than 16,000 other cars (including baggage cars). The capitalization is £53,838,090.

Upward of 90 per cent of this company's mileage is in the Province of Buenos Aires, the richest Province in the Argentine Republic. The railway reaches such important cities or ports as La Plata, Bahia Blanca, Mar del Plata, Ingeniero White, etc. The freight station, Sola, is the largest in South America, with a capacity for the storage of 230,000 bags of grain and 2,000 tons of other freight. The port of Ingeniero White, near Bahia Blanca, is equipped by the railway with a number of up-to-date electrical elevators for grain. There are seven loading belts on each side of the various elevators, capable of loading 300 tons per belt per hour, or 4,200 tons per elevator. By this method about 6,000 tons of grain can be handled in eight hours. Extensive shops and foundries are owned by the railway, and the line is laid with heavy rail and equipped in a thoroughly modern manner.

During recent years the company has constructed an important extension from Bahia Blanca westward through the plains of northern Patagonia to Neuquen and Senillosa, 480 miles. From this latter point an extension is projected to Pino Hachado Pass, on the boundary with Chile, where connections will be afforded with a line to be constructed by the Chilean State Railways. This will complete a transcontinental system, with easy grades. Branch lines are to be constructed on this extension to Rio Colorado and Darwin, southward through the Province of Rio Negro, to Port San Antonio on the Gulf of San Matias, where a connection will be afforded with the Government's Patagonia Railway, partly constructed and projected to cross central Patagonia and extend southward to Lake Argentine, etc. The new line of the Buenos Aires Great Southern Railway to Neuquen and Senillosa is handling an excellent traffic, particularly in cattle. Important irrigation works have been carried out by the railway in the Rio Negro and Neuquen Valleys.

The Buenos Aires Great Southern Railway has its passenger terminus at Plaza Constitucion Station, Buenos Aires. Here approximately 350 trains are handled daily, including a number of express and de luxe trains to Mar del Plata, Bahia Blanca, etc. Between 25,000,000 and 30,000,000 passengers are handled annually in normal years. In 1913, a normal year, the railway also handled 6,592,581 head of live stock, 1,744,572 tons of wheat, 998,000 tons of maize, 837,000 tons of oats, 227,000 tons of potatoes, 922,000 tons of lime and stone, and 2,531,000 tons of general freight. The following table shows the earnings of the system since 1906-7:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1906-7.....	2,613	£4,254,009	1912-13.....	3,544	£6,569,345
1907-8.....	2,613	4,442,376	1913-14.....	3,655	5,464,588
1908-9.....	2,716	4,649,499	1914-15.....	3,763	4,941,621
1909-10.....	2,770	4,601,924	1915-16.....	3,792	5,549,140
1910-11.....	3,044	4,988,380	1916-17.....	3,792	5,728,000
1911-12.....	3,380	5,404,086	1917-18.....	3,792	5,816,000

The capitalization of the company consists of £20,090,000 ordinary stock, £8,000,000 5 per cent preference stock, £15,472,560 4 per cent debenture stock, £1,032,930 debenture stock ($4\frac{1}{2}$ per cent), issued to the Buenos Aires Western Railway in payment for the Saladillo Branch, and £242,600 $4\frac{1}{2}$ per cent debenture stock issued to the Buenos Aires Western Railway on account of the purchase of the Brandzen branch. The fixed interest-bearing obligations of the company form only one-third of the capitalization, and the margin of safety even in poor years is very large. The ordinary stock formerly received 7 per cent per annum in normal years, this rate being maintained for many years to 1912-13. In 1913-14 the rate was 5 per cent, and in 1914-15 it was 4 per cent. From the profits of 1915-16 the dividend declared was $4\frac{1}{2}$ per cent. These shares sold as high as 148 $\frac{3}{4}$ in 1905, above 125 every year thereafter to 1913, and at 120 in 1914. At the closing of the London Stock Exchange, July 27, 1914, the price was 102. By April, 1916, the stock had declined to 80, and in January, 1918, had reached the price of 70. The excellent property that this stock represents would lead one to believe that the stock is on the "bargain counter." There have been

heavy declines in all the other securities of the company. Most of these securities have been loaned to the British Government as part collateral for war loans. This company is said to have more than 100,000 stockholders on its books. Its London office is at River Plate House, Finsbury Circus.

BUENOS AIRES & PACIFIC RAILWAY AND ITS ACQUISITIONS AND EXTENSIONS.

Another of the great broad-gauge lines converging at Buenos Aires is the British-owned Buenos Aires & Pacific Railway. This company has been the most adventurous and ambitious of the various railways, and, as a result, operates the principal units of the only transcontinental line in South America. The company was formed in 1882 in London to purchase from the Argentine Government a line extending from Mercedes to Villa Mercedes. In 1886 an extension from Mercedes into Buenos Aires, 425 miles, was completed, and in 1900, 473 miles of additional lines were undertaken, these being completed between 1902 and 1907. In 1904 the Bahia Blanca & North Western Railway was acquired under a lease agreement. This line extends from Toay, a station on the "Pacific's" line, to Bahia Blanca, 231 miles, where important terminals and docks are owned. This terminal at tidewater, owned by the company, is known as Port Galvin and is built of masonry. Eight ocean steamers, each drawing 25 feet of water, may be accommodated, as well as one ship drawing 30 feet. Elevators with storage capacity of 18,000 tons, a produce market, sidings, electric cranes, and various other facilities are also owned. The Bahia Blanca & North Western Railway, after its acquisition, was extended (in the year 1907) to form a link in the route between Bahia Blanca and Mendoza—this extension, Nueva Roma to Huinca Renanco, being 287 miles in length. Various feeders and branches have since been thrown out from this and the main line, increasing the existing mileage to nearly 900 miles. The capitalization of the Bahia Blanca & North Western Railway is as follows:

Stock.	Amount outstanding.	High price since January, 1911.	Price January, 1918.
1. Guaranteed stock.....	£1,350,000	93½	63
2. 4½ per cent guaranteed stock.....	3,250,000	103	63
3. 4 per cent first debenture stock, redeemable.....	2,450,000	101	64
4. 4½ per cent second debenture stock, redeemable.....	3,000,000	103½	67

The guaranteed stock (1) received dividends of 3 per cent per annum from 1904 to 1908, 3½ per cent from 1909 to 1912, 4 per cent from 1913 to 1916 (July), and 4½ per cent thereafter.

Wheat, barley, oats, wine, maize, cattle, sheep, and general merchandise form the classes of freight handled by the Bahia Blanca & North Western Railway. The passenger business is not large in comparison with the freight earnings. The record year's business was in 1912-13, when gross earnings amounted to £836,036. The annual rental received by the company from the Buenos Aires & Pacific Railway amounts to about £450,000.

The Buenos Aires & Pacific Railway operates under agreement the Villa Maria & Rufino Railway, extending from Rufino on its line to Villa Maria, where junction is afforded with the Central Argentine Railway. Dividends of $4\frac{1}{2}$ per cent are guaranteed on the £393,750 stock and interest on the £673,500 4 per cent first debenture stock. These securities sell at about 67 and 65, as compared with 91 and 94, the high prices during recent years. The length of this railway is 141 miles. The lease expires in 1920. The largest gross earnings during recent years were £77,308 in 1911.

During the year 1907 the Buenos Aires & Pacific Railway, deciding to continue its policy of expansion, leased the Argentine Great Western Railway, extending from Villa Mercedes, then the terminus of the "Pacific" line, to Mendoza, the most important city of western Argentina and the center of a rich wine-producing country. The Great Western Railway as it then existed had a length of 535 miles; to-day, owing to the construction of a new low-grade line and additional branches, the mileage totals about 950. The railway was originally built in 1885 and was acquired in 1887 by an English company.

The lease agreement between the Buenos Aires & Pacific Railway and the Argentine Great Western Railway provides that the Great Western 5 per cent cumulative preferred stock shares pro rata with the "Pacific's" first preference 5 per cent stock in all dividends up to 5 per cent per annum and will share pro rata with the latter's ordinary stock for dividends between 5 and 6 per cent; when this ordinary stock receives 7 per cent the rate on the Great Western's preferred stock will be $6\frac{1}{2}$ per cent, which rate will be increased to 7 per cent in case dividends of more than 10 per cent per annum are paid on the "Pacific's" ordinary stock. The Great Western's ordinary stock shares equally with the "Pacific's" second preference stock up to 5 per cent and shares for additional dividends with the "Pacific's" ordinary stock under conditions similar to those governing the preferred stock, as above. Interest on all debenture stock issues is guaranteed by the "Pacific."

Dividends on the preference and ordinary stocks of the Great Western were maintained at the rate of 6 per cent per annum prior to the fiscal year 1908-9. In that fiscal year and subsequently, to and including 1913-14, the rate was 5 per cent on each class. In 1914-15 the rate was 5 per cent on the preference stock and 5s. 6d. on the ordinary stock. For 1915-16 the rate was 5 per cent on each class.

The capitalization of the Great Western is as follows:

Stock.	Amount outstanding.	High price since January, 1911.	Price January, 1918.
Ordinary stock	£2,125,000	110	49
5 per cent cumulative preference stock	2,125,000	116	70
4 per cent perpetual first debenture stock	1,700,000	105	68
4 per cent perpetual second debenture stock	1,700,000	102	64
5 per cent redeemable debenture stock	3,600,000	115	79
	11,250,000		

In the year 1909 the "Pacific" purchased from the National Government a line known as the Andine Railway, extending from Villa Mercedes to Villa Dolores, 215 miles. This line has been incorporated directly into the system. The Argentine Transandine Railway, a meter-gauge line of 111 miles, which forms a part of the mountain section of the ocean-to-ocean route, was acquired in 1907. This line extends from Mendoza up the mountain slope to the Chilean boundary, reached at an altitude of over 10,000 feet. The great tunnel connecting Argentina and Chile is 2 miles in length and cost a very large sum. Its date of completion, after several years of construction, was 1910.

The Argentine Transandine line was originally surveyed by John and Matthew Clark in 1873. Several years prior to that date these brothers had surveyed a route for a transcontinental telegraph line and at that time had conceived the idea of a through railway following approximately the route later adopted. It was not until 1886 that a company was formed to construct the mountain section of the through route. This company was known as the Buenos Aires & Valparaíso Transandine Railway, the name subsequently being changed to the Argentine Transandine Railway. A total of 91 miles of the line, Mendoza to Puente del Inca, was constructed prior to December 31, 1893. It was not until April 16, 1910, that through trains were operated across the continent.

The Transandine is capitalized approximately as follows:

Stock.	Amount.	High price since January, 1911.	Price, January, 1918.
4 per cent "A" debenture stock (guaranteed principal and interest by the "Pacific").	£310,166	96	.65
4 per cent "B" debenture stock (interest dependable on income is regularly paid).	310,166	83	.55
7 per cent cumulative preferred stock (£387,500 dividends in arrears to Dec. 31, 1917).	500,000	a 20	8.
7 per cent deferred stock (no dividends).	350,000		
Total capitalization.....	1,470,332		

a Par £20.

The preferred stock has received only 6 per cent in dividends since 1906, the last dividend of 3 per cent having been paid in December, 1913.

In addition to the various acquisitions and extensions enumerated in the preceding paragraphs, the Buenos Aires & Pacific Railway has otherwise extended and double-tracked the system in various places. An important extension has been constructed, known as the Patagonas Extension, extending from Bahía Blanca southward to Carmen de Patagonas, 167 miles, at the mouth of the Rio Negro. This will give the system access to northern Patagonia. Land is being irrigated along the Patagonas division by means of canals brought from the Colorado River, and the "Pacific" is making endeavors to attract colonists to the district.

The earnings of the entire Buenos Aires & Pacific Railway, covering a period of years, have been as follows:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1910-11.....	3,114	£4,820,841	1914-15.....	3,527	£4,538,943
1911-12.....	3,240	4,976,651	1915-16.....	3,535	4,645,000
1912-13.....	3,404	5,590,613	1916-17.....	3,535	4,414,000
1913-14.....	3,473	4,881,665	1917-18.....	3,535	5,221,000

The company is capitalized as follows (not including the capitalization of the Argentine Great Western Railway, the Bahia Blanca & North Western Railway, and the Argentine Transandine Railway):

Stock.	Rate.	Amount outstanding.	High price since 1911.	Price, January, 1918.
	<i>Per cent.</i>			
Ordinary stock.....	a $\frac{1}{2}$	£10,000,000	101	40
First preference stock (cumulative).....	5	1,200,000	115	70
Second preference stock (noncumulative).....	b 5	1,000,000	107	51
Perpetual first debenture stock.....	4	2,925,000	106	71
Redeemable second debenture stock.....	$4\frac{1}{2}$	2,075,000	108	71
Consolidated debenture stock.....	$4\frac{1}{2}$	7,942,673	108	70
Debenture stock.....	5	4,000,000	107	75
Total.....		27,142,673		

a See paragraph below for dividend rates.

b Compares with 56s. 6d. in 1914-15 and 5 per cent per annum in previous years.

Guaranties and other forms of rent paid by this company to leased and controlled lines amount to nearly £1,000,000 per annum.

According to the figures in the annual report of the company for the year ended June 30, 1916, the income account showed the following results: Operating revenue, £4,655,019; operating expenses, £2,846,986; net revenues, £1,808,033; other income, £241,000; net income, £2,049,033; fixed charges, £1,621,000; surplus, £428,033.

Despite the handicap of heavy guaranties and relatively large fixed charges, it may be said that this property is a magnificent one. It may possibly be a little ahead of its time, but following the influx of settlers after the end of the war in Europe, the country traversed by the line is certain to develop with considerable rapidity.

The dividend rate on the ordinary stock has been as follows: To and including 1908, 7 per cent; 1909, 5 per cent; 1910, 3 per cent; 1911, $3\frac{1}{2}$ per cent; 1912, 2 per cent; 1913, 3 per cent; 1914-15, none; 1916, $\frac{1}{2}$ per cent.

BUENOS AIRES WESTERN RAILWAY.

This system, which has had probably the longest record of continuous prosperity of any railway in the Argentine Republic, stands fourth in importance. Its present mileage is 1,870, and it has the distinction of being the outgrowth of the oldest system in Argentina. The line extends westward from Buenos Aires into the districts of Pampa and San Luis, and it is primarily a freight-carrying road,

although a very substantial passenger business is handled and a large passenger terminal is owned—the Once Station, in the heart of Buenos Aires. An extensive goods tunnel carries the freight to the port, and the passenger station is located directly on the Anglo-Argentine Subway, affording quick connections with the business sections of the city. A portion of the suburban lines is operated by electricity. Plans are laid for the construction of a large mileage of branches and feeder lines.

Jointly with the Buenos Aires Great Southern Railway, the "Western" has leased the Buenos Aires Midland Railway, extending from a suburb of Buenos Aires to Carhue, 320 miles. Three per cent per annum was guaranteed to the shareholders (both classes) from 1914 to June 30, 1916, the rate thereafter to be 4 per cent per annum. The Buenos Aires Western Railway paid to the Midland in 1915-16, as per working agreement, the sum of £68,296. The capitalization of the Midland consists of £500,000 ordinary stock, £1,000,000 preference stock, par value £1, which sells (January, 1918) at approximately 13s. per share, and £1,559,010 4 per cent debenture stock, selling (January, 1918) at about 69 (high since 1911, 105 per cent). The full amount of rental has not thus far been earned by the company. Prior to the date of the lease a large majority of the ordinary stock was owned by the two lessees.

During the year 1912-13, in which record earnings were shown, the Buenos Aires Western Railway carried 7,345,845 head of live stock, 2,896,015 tons of freight, and 11,462,842 passengers. In 1914-15 a total of 8,830,106 passengers were handled, and in 1915-16 the number decreased to 8,138,189. The live stock handled during these two fiscal years numbered 7,018,867 and 6,781,262, and the freight tonnage was 2,089,975 and 2,049,096.

Gross receipts covering a period of years have been as follows:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1907-8.....	1,219	£2,205,237	1913-14.....	1,792	£2,529,178
1908-9.....	1,305	2,296,860	1914-15.....	1,867	2,522,682
1909-10.....	1,365	2,300,510	1915-16.....	1,870	2,714,622
1910-11.....	1,586	2,634,186	1916-17.....	1,870	2,513,080
1911-12.....	1,659	2,425,683	1917-18.....	1,832	2,865,000
1912-13.....	1,781	2,906,008			

Wheat, maize, hay, and other agricultural products form the bulk of the traffic handled.

For a long period prior to 1910-11 the dividend rate on the ordinary stock was 7 per cent per annum; in 1910-11, 7 per cent and $\frac{1}{2}$ per cent extra was paid; in 1911-12 and 1912-13 the rate was 7 per cent; in 1913-14, 1914-15, and 1915-16, 5 per cent per annum was paid.

Rolling stock in service June 30, 1916, consisted of 347 locomotives, 432 passenger-train cars, 9,341 freight-train cars, and 184 service cars.

Quotations on the various securities of the company follow:

Securities.	Rate.	Amount outstanding.	High price since January, 1911.	Price January, 1918.
	<i>Per cent.</i>			
Preference shares (£10 par).....	4½	£2,552,340	a 11½	7
Do	5	300,000	a 12½	8
Ordinary shares.....	5	17,347,660	135	71
Government bonds, 1888 issue.....	5	1,000,000	(b)	(b)
Debenture stock.....	4	7,872,203	105	72
Terminable (1925) debenture stock.....	5	1,000,000	.....	94
Capitalization.....	.....	30,072,203	.....	.....

a Par £10.

b This issue is not quoted.

The Buenos Aires Western Railway is an excellent property and has been kept in a high state of maintenance, despite the traffic losses due to the business depression throughout the Republic. Its territory is an extremely rich one and its management is of the best.

CORDOBA CENTRAL RAILWAY.

This British-owned system is the result of the amalgamation of five different lines, four of which were at one time operated by separate companies. These lines were distinguished as follows: Cordoba Central Original Line; Cordoba Central Railway Central Northern Section; Cordoba Central Railway Buenos Aires Extension; Cordoba & Rosario Railway; Argentine North Western Railway.

The Original Line was constructed following the acquisition of the concession in 1888 by the present owners. This section is about 129 miles in length and extends from the city of Cordoba to the town of San Francisco on the eastern boundary of the Province of Cordoba, connection being afforded at the latter place with the Province of Santa Fe Railway and with the Cordoba & Rosario Railway. At Cordoba connections are afforded with the Government's Argentine Northern Railway and with the Cordoba Central Northern Extension. The country served by this division is prosperous and well settled, and this is probably the most important section of the system.

The Central Northern Section was originally known as the Central Northern Railway and was built following the granting of the original concession in 1871. The railway was acquired by its present owners in 1889. Its present length is 546 kilometers (339 miles), and it extends from Cordoba northward to Tucuman. There are two important branch lines, one extending from Recreo to Chumbicha, 176 kilometers (109 miles), and the other from Frias to Santiago del Estero, 162 kilometers (101 miles). At Tucuman the main line connects with the Central Northern Railway (Government), which runs northward to the Bolivian frontier and will eventually afford direct connections with a through line to Oruro and La Paz. The gauges on the Government line and on the Cordoba Central are the same (1 meter). A large tract of sugar country is traversed. Timber, cattle, stone, lime, and salt are also important items of traffic.

The Cordoba Central Buenos Aires Extension was constructed following the granting of a concession in the year 1903 and forms a through extension of the system from Rosario to Buenos Aires, 300

kilometers (186 miles). The line was opened for provisional traffic in 1909 and for all traffic in 1912. The extension, although quite costly, will probably in time prove of great benefit to the system, providing, as it does, an outlet for through traffic to Buenos Aires. Once the small mileage of uncompleted track is laid in Bolivia, this line will form the southern terminus of a direct through system between La Paz, Oruro, and Uyuni on the north and Buenos Aires on the south. Furthermore, no change of gauge will be necessary.

The Cordoba and Rosario section, extending between these two points, was the result of a concession granted in 1886. The section handles a substantial traffic in cereals, destined for exportation from Rosario and Buenos Aires. This is a most important division.

The northwestern division passes through large sections of the sugar lands in the north. While not the most important of the various sections, it nevertheless furnishes considerable traffic.

The capital invested in the enterprise to June 30, 1915, amounted to £20,419,222. The mileage as of that date was 1,186 and the number of stations 143. There were 297 locomotives, 314 passenger cars, not including the baggage equipment, and 7,383 other cars. There were carried during the year 2,199,893 passengers and 2,778,527 tons of freight. A table of earnings over a period of several years is here given:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1909-10.....	1,149	£911,605	1914-15.....	1,186	£1,202,625
1910-11.....	1,170	1,000,371	1915-16.....	1,186	1,543,991
1911-12.....	1,172	1,199,243	1916-17.....	1,205	1,562,000
1912-13.....	1,176	1,363,700	1917-18.....	1,205	1,701,700
1913-14.....	1,184	1,347,998			

The capitalization of the Cordoba Central Railway is as follows:

Securities.	Amount outstanding.	High price since 1911.	Price January, 1918.
Ordinary income stock.....	£4,068,616	97½	13
5 per cent cumulative first preference income stock.....	1,440,000	119	30
5 per cent second preference income stock.....	1,661,895	85	17
4 per cent first debenture stock.....	8,000,000	9½	59
4½ per cent second debenture stock.....	5,000,000	100	44
Deferred warrants.....	a 133,100	.....	34
Notes, 6 per cent.....	248,600	(b)	(b)

a June 30, 1916; amount since increased.

b Not quoted.

The company suffered severely following the outbreak of the European war and has not yet fully recovered. Net receipts for 1915-16 totaled £492,200 and fixed charges were £579,100, of which £133,100 were met by means of deferred certificates authorized early in 1916 under a funding scheme. Gross receipts for 1916-17 were approximately £28,000 larger than in 1915-16, and a moderate increase in net receipts resulted. In 1917-18 there was an increase of £139,700 in the gross receipts. The system is being operated as economically as possible without lowering the standard of maintenance, and every effort is being made to put the property on a thoroughly firm basis. The railway is a good one, and is earnestly endeavoring to please its patrons by rendering good service. The

company was seriously affected by the collapse of the Argentine Railway (see p. 61), which had taken it over on what were believed to be favorable terms, and, owing to the outbreak of the war shortly after the event just mentioned, it was unable fully to recover. The amount invested in the undertaking thus far exceeds £20,000,000, including the approximate sum of £3,200,000 expended on the Buenos Aires extension, with its terminals and substantial passenger station at Buenos Aires. This extension, although much criticized, will probably in time prove the salvation of the property.

ENTRE RIOS RAILWAY.

This is a British-controlled railway, 831 miles in length, forming a portion of the through route from Buenos Aires to Asuncion. Its southern rail terminus is at Ibicuy on the Parana River, where it connects via car ferry with the Buenos Aires Central Railway, over whose tracks the international trains are carried into Buenos Aires. The present Entre Rios Railway Co. acquired the property, then 379 miles in length, in the year 1892, this property consisting mostly of the Central Entrerriano (Government) Railway. In 1895 the Primer Entrerriano Railway, Guleguay Central to Puerto Riaz, was taken over; in 1898 a line from Villaguay to Concordia was opened; and in 1902 a large number of branches were completed, as well as the deep-water port of Ibicuy. The gauge of the line is 4 feet 8½ inches.

In October, 1912, the Entre Rios Railway was leased to the newly formed Argentine Railway, which company has since passed into the hands of receivers. There is little likelihood that the terms of the lease will be carried out.

The capitalization of the Entre Rios Railway is as follows:

Securities.	Amount outstanding.	High price since 1911.	Closing price January, 1918.
Ordinary stock	£1,783,140	88	25
5 per cent first preference stock (cumulative)	2,000,000	105	69
4 per cent second preference stock (noncumulative)	734,049	81	34
4 per cent debenture stock (redeemable)	1,505,000	99	64
5 per cent debentures (redeemable)	700,000	107	78
5 per cent consolidated debenture stock (redeemable)	1,303,000	97½	71

The ordinary stock received a 1½ per cent dividend in 1911, but none since. The first and second preference stocks received regular dividends of 5 per cent and 4 per cent, respectively, until 1914; since the outbreak of the European war no dividends have been paid on either class of preference stock.

The following table shows the earnings of the railway over a period of years:

Years.	Average miles operated.	Gross receipts.	Surplus after charges.
1911-12	688	£472,101	£89,282
1912-13	730	611,145	117,320
1913-14	742	609,850	135,010
1914-15	730	437,630	(a)
1915-16	799	612,433	67,472

a Deficit of £61,043.

In 1916-17 the gross receipts totaled £644,900, and the mileage operated was 831. For the year ended June 30, 1918, the gross receipts amounted to £857,900—showing the very substantial increase of £213,000 over the figures for the preceding year.

The following statistics indicate the development of road and equipment during the period from February, 1892, to June 30, 1915:

Items.	1892	1915
Miles of line open.....	379	730
Locomotives.....	23	94
Passenger cars.....	51	111
Freight cars.....	402	2,166
Ferryboats (car ferries).....		3

The Entre Rios Railway is largely interested in the Argentine North Eastern Railway.

ARGENTINE NORTH EASTERN RAILWAY.

This company's lines extend throughout the Provinces of Entre Rios and Corrientes and into the Territory of Misiones. A large section of the railway forms an integral part of the route from Buenos Aires to Asuncion, Paraguay. A rapidly developing section of Argentina is served. The existing mileage is 752, the gauge being 4 feet 8½ inches, and a large additional mileage is projected.

The railway had the misfortune to complete and open for traffic large sections of new mileage just before the outbreak of the war in Europe. This had led to the issuance of substantial amounts of secured notes and loans. Gross and net revenues for the fiscal year ended June 30, 1915, were £108,000 and £60,000 less than for 1912-13. International traffic receipts, owing to existing conditions in Paraguay, did not come up to expectations, and this brought about a reduction in through passenger and freight train service and a natural decrease in revenue. In order to meet interest requirements on certain debenture issues and the temporary loan, a funding scheme was carried out whereby funding scrip certificates were issued in lieu of cash for interest payments.

The capitalization of the system as of June 30, 1916, was as follows:

Stock.	Amount.	High price since January, 1911.	Price January, 1918.
Ordinary shares (par £20).....	£2,768,500	60	23
5 per cent "A" debentures and "A" debenture stock.....	1,200,000	112	79
5 per cent "B" debentures and "B" debenture stock.....	992,229	105	70
"C" debentures and debenture stock.....	1,023,750	92	42
	5,984,479		

The earnings of the Argentine North Eastern Railway over a series of years have been as follows:

Years.	Average miles operated.	Gross receipts.	Years.	Average miles operated.	Gross receipts.
1910-11.....	614	£293,023	1914-15.....	708	£259,627
1911-12.....	665	319,312	1915-16.....	752	328,716
1912-13.....	665	367,025	1916-17.....	752	389,100
1913-14.....	666	348,489	1917-18.....	752	457,600

It will be noted that gross receipts for 1915-16, as compared with 1914-15, showed an increase of approximately £69,000. Net receipts showed an increase of £60,000, and, after paying interest in full on the "A" debentures and stock and putting aside £20,000 for renewals, the company was able to meet the interest on the "B" debentures and stock for the second half of the year, interest for the first six months being paid in the funding scrip certificates. In 1916-17 and 1917-18 gross earnings showed further increases, and it is likely that the final returns will show substantial net increases, reflecting the better prospects of the property. Cattle traffic is now breaking all records, and a very large number of oranges are being handled. The amount of passenger traffic is fair, with prospects of increase owing to the fact that train service to Paraguay has recently been increased from one to two trains per week in each direction. The number of passengers carried during 1915-16 was 169,291, as compared with 263,171 during 1912-13. Dining cars and sleeping cars are carried on through trains.

The amount of equipment in service June 30, 1916, was as follows: Locomotives, 68; passenger-train cars, 96; freight-train cars, 1,270; ferryboats, 2. Sleeping cars and dining cars number 10 and 7, respectively.

The ferries engaged in traffic with Paraguay made 1,158 trips during 1915-16, as compared with 628 trips during 1914-15. There were 29,862 tons of freight received from and 893 tons shipped to Paraguay during 1915-16, as compared with 13,564 tons and 787 tons the year previous. A total of 26,848 head of live stock were carried. Passengers interchanged totaled 2,660.

CENTRAL RAILWAY OF THE CHUBUT CO.

There is one other British-controlled and directly operated railway property in Argentina, namely, that of the Central Railway of the Chubut Co., incorporated in 1886 to construct a railway extending from Port Madryn, one of the chief Patagonian ports, to Trelaw and Gaiman. The line is about 51 miles in length and serves an important section largely settled by Welsh colonists. At Port Madryn a substantial iron pier is owned. Extensions of this line have been contemplated for some time to carry the system across the Republic to the foothills of the Andes. The company during past years has paid a number of substantial dividends on its stock, which is outstanding to the amount of £200,000. The £1 shares recently sold at 7s. a share, a price far below the high record. The 6 per cent debentures of the company are outstanding to the amount of £125,000. The gross receipts of the property have been as follows: 1911-12, £35,184; 1912-13,



Photograph by P. S. Penfield.

FIG. 4.—SCENE FROM PUENTE DEL INCA, SHOWING MOUNTAINS OF ARGENTINE ANDES AND SECTION OF COG RAILWAY.



Photograph by P. S. Penfield.

FIG. 5.—BUENOS AIRES & PACIFIC RAILWAY; WATER TANK CARS AND STACKS OF WOOD BURNED IN LOCOMOTIVES.

£40,052; 1913-14, £37,950; 1914-15, £28,526. The figures for 1915-16 and 1916-17 are not available.

ARGENTINE RAILWAY.

This company was incorporated in July, 1912, with a very broad charter. Interests were acquired or leases effected of several properties, including the Córdoba Central Railway, the Argentine North Eastern Railway, the Entre Rios Railway, the French Railway of the Province of Santa Fe, the Rosario & Puerto Belgrano Railway, and others. Owing to the crisis brought about by the war receivers were appointed for the company. The two-year notes of the company were quoted January, 1918, at about 56. Just what methods will be followed in the reorganization of the property (if it is to be reorganized) is at present uncertain. A number of the properties have been returned to their original owners. In addition to the railways mentioned, various land, cattle, and development properties were acquired by the Argentine Railway and were operated. The Argentine Railway is officially incorporated in Maine, and its preferred stock was listed on the Baltimore Stock Exchange. Very little American capital is invested in the enterprise.

FRENCH RAILWAY OF THE PROVINCE OF SANTA FE.

France, like Great Britain, has been attracted to Argentina as a country offering opportunities for the establishment and construction of railways. The principal so-called French lines in the Republic are the French Railway of the Province of Santa Fe (Cia. Francesa de Ferrocarriles de la Provincia de Santa Fe), the Province of Buenos Aires Railway, and the Rosario & Puerto Belgrano Railway. Of these various lines the most important and financially successful is the Province of Santa Fe line.

The original concession for the railway was granted by the Government in 1882 to John Meiggs & Sons, of London, the concession calling for the construction of 815 kilometers (506 miles) of line. This concession was acquired in 1888 by a French company known as the Compagnie Fives-Lille, which later in the year transferred it to its present owners. Year by year this company expanded the system, reaching into new territory capable of development and bringing a large immigrant population to the district. On December 31, 1909, the length of the lines amounted to 1,709 kilometers (1,062 miles). Between that period and June 30, 1915, 192 kilometers (119 miles) more were built, while concessions were held calling for the construction of an additional 274 kilometers (170 miles). The earnings of the system over a period of years have been as follows:

Years.	Approximate capital invested.	Gross receipts.	Dividends.
	\$ m/n.	\$ m/n.	Per cent.
1908-9.....	85,087,573	12,530,266	33
1909-10.....	88,735,951	12,353,505	-----
1910-11.....	93,338,936	13,445,093	43
1911-12.....	101,515,013	13,153,215	8
1912-13.....	109,897,853	13,791,335	73
1913-14.....	116,519,124	12,904,841	2
1914-15.....	117,510,073	9,879,194	None.
1915-16.....	119,501,786	11,388,736	None.

The shares are listed on the Bourse in Paris, and the bonds, which bear interest at 3 and $4\frac{1}{2}$ per cent per annum, are listed in Paris and London. The amount of bonds listed in London is £607,400. In January, 1918, they were quoted at 55, as compared with 63 at the time of the closing of the London Stock Exchange at the outbreak of the war.

Owing to various causes this company, since the year 1912-13, has found it impossible to meet the normal minimum interest upon the capital invested in its system. In 1914 the dividend paid upon the shares fell to 10 francs per share, equivalent to 2 per cent interest. In 1915 no interest whatever was paid to shareholders, nor did they receive any in 1916. During the 28 years of the company's existence, in two only has it been enabled to pay a dividend of more than 5 per cent. During 13 years it was possible to pay dividends varying between 0.84 and 4.76 per cent, while 13 financial years closed without the shareholders receiving any dividend at all in compensation for the capital invested.

In 1914 the financial situation of the company had become particularly critical. Without the assistance of its bankers in Paris it would have been unable to meet its most pressing charges and would have been obliged to suspend payments.

Since then not only has the company had to meet the fixed debenture charges but also (1) the expenditure necessary for reestablishing that part of the lines which was destroyed by the inundations of 1914 and 1915 and (2) maintenance expenses, demanded by official control or judged to be indispensable. The amounts thus invested have been as follows:

Financial years.	Maintenance expenses.	Expenses caused by floods.
	\$ m/n	\$ m/n
1913-14.....	6,375,775	476,324
1914-15.....	948,992	709,408
1915-16.....	1,991,713	278,819
1916-17.....	1,002,000	190,509
Total.....	10,318,480	1,655,060
General total.....		11,973,540

An issue of bonds at short date was made in 1916. By this means the company raised from 5,000,000 to 6,000,000 francs amortizable in 10 years.

The following tables show statistics of working results, proceeds, and cost of fuel:

WORKING RESULTS.

Years.	Working expenses.			Operating ratios. ^a			Net profits on capital invested. ^a		
	Excluding contributions to renewal fund.	Including contributions to renewal fund.	Including contributions to renewal fund to extent allowed by Law 5315.						
	\$m/n.	\$m/n.	\$m/n.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1909-10.....	6,847,677	7,677,543	7,677,543	55.43	62.15	62.15	6.20	5.26	5.26
1910-11.....	6,955,846	7,921,532	7,921,532	51.73	58.92	58.92	6.95	5.91	5.91
1911-12.....	7,550,908	8,413,959	8,413,959	57.40	63.97	63.97	5.51	4.66	4.66
1912-13.....	7,795,433	8,456,108	8,621,277	56.52	61.31	62.51	5.45	4.85	4.70
1913-14.....	7,574,789	7,795,768	8,486,227	58.69	60.41	66.80	4.57	4.38	3.79
1914-15.....	7,426,777	7,451,317	8,267,793	75.17	75.42	83.69	2.08	2.06	1.37
1915-16.....	7,574,492	7,876,090	8,520,695	66.51	69.16	74.81	3.19	2.93	2.39

^a The three columns of percentages under these headings correspond, respectively, to the three columns under "Working expenses."

AVERAGE RECEIPTS, GENERAL TRAFFIC.

Years.	Kilometric tons.	Receipts per kilometric ton.	Net proceeds per kilometric ton.
		\$m/n	\$m/n
1911-12.....	368,000,000	0.035	0.012
1912-13.....	404,000,000	.034	.013
1913-14.....	390,000,000	.033	.013
1914-15.....	317,000,000	.031	.008
1915-16.....	391,000,000	.029	.009

COST PER TON OF FUEL FOR RAILWAY.

Years.	Wood.	Coal.	Years.	Wood.	Coal.
	\$m/n	\$m/n		\$m/n	\$m/n
1912-13.....	5.50	23.03	1915-16.....	9.50	31.48
1913-14.....	6.00	22.86	1916-17.....	10.50	43.41
1914-15.....	8.00	23.34	July, 1917.....	11.50	46.50

A recent statement indicated that the company had in service 160 locomotives, 284 passenger-train cars, and 5,643 freight-train cars. Nineteen sleeping cars and 9 dining cars were included in the passenger equipment. The railway handles a large tonnage of cereals, sugar, live stock, timber, etc. The gauge of the system is 1 meter. Among the extensions projected is a line to Asuncion, Paraguay.

PROVINCE OF BUENOS AIRES RAILWAY.

This company operates a railway approximately 1,287 kilometers (800 miles) in length, extending through various sections of the Province of Buenos Aires. Among the lines operated is one from Buenos Aires to Rosario, 377 kilometers (234 miles) a somewhat longer route than the Central Argentine Railway's two lines and the Cordoba Central Railway. This section is also connected via a

branch with the port of La Plata. The company's concession allows for the construction of an extension to Bahía Blanca. For the year ended June 30, 1918, the system reported gross receipts amounting to \$16,587,000 m/n, as compared with \$13,555,000 m/n in 1916-17. The capital investment in the property exceeds \$40,000,000 United States currency, on which sum only a small return has been earned thus far. The original concession for the construction of these lines was granted September 26, 1904, and the first section was opened to traffic early in 1908. A total of 1,088,160 passengers and 878,370 tons of freight were handled in 1914 (a normal year). The shares and debentures of this company are listed on the Paris Bourse. The company has port facilities at Rosario, La Plata, and Riachuelo. An extension runs from Buenos Aires in a southwesterly direction to Salliquelo, near the western boundary of the Province. This line parallels the Buenos Aires Midland Railway. Another extension runs from Patricos on the Salliquelo line to Villagas, near the northeastern corner of the Province. The La Plata branch reaches the important coal docks and wharves in the city. The equipment in service amounts to approximately 70 locomotives and 1,800 cars of various descriptions.

ROSARIO & PUERTO BELGRANO RAILWAY.

This company was incorporated in Paris in 1906 to build a broad-gauge (5-foot 6-inch) railway to extend from Rosario in a southerly direction to Puerto Belgrano, a short distance eastward from Bahía Blanca. It was expected that the line would serve as a route for the interchange of considerable traffic between the various broad-gauge lines extending from Buenos Aires and points in the interior. The line is 493 miles in length, and its gross earnings for 1917-18 amounted to \$2,567,200 m/n, as compared with \$2,314,700 m/n in 1916-17. Following the incorporation of the Argentine Railway in 1912, this company was to have formed a part of that system, an option on the stock having been obtained. The capitalization consists of 50,000,000 francs stock and 137,500,000 francs 5 per cent debentures of a par value of 250 francs. The line was opened for traffic in 1911. This is the only broad-gauge line owned by a French company.

BUENOS AIRES CENTRAL RAILWAY.

This is the most important of the locally controlled railway systems. A total of 252 miles of line is operated, including the line from Chacarita Station, Buenos Aires, to Zarate, from which point a car ferry connects with the Entre Rios Railway, which in turn routes traffic to the Argentine North Eastern Railway, these three companies forming the Argentine section of the through route from Buenos Aires to Asuncion, Paraguay. Another extension runs to Salta, Rojas, etc.

The capitalization consists of \$20,165,000 m/n shares of a par value of \$500 m/n, most of which are held in Argentina, as well as £700,000 4½ per cent debentures and £600,000 5 per cent debentures, held largely in Great Britain. Dividends of 2 per cent and 3½ per cent were paid in 1914-15 and 1915-16 on the stock. The debentures are quoted on the London Stock Exchange, as follows: Four and one-half per cent first debentures—High since 1911, 100; price January,

1918, 72. Five per cent second-mortgage debentures—High since 1911, 96; price January, 1918, 77.

During the years 1913-14 to 1917-18 gross earnings have been reported as follows:

Years.	Mileage operated.	Gross receipts.	Years.	Mileage operated.	Gross receipts.
1913-14.....	175	£289, 114	1916-17.....	252	£312, 620
1914-15.....	230	244, 844	1917-18.....	252	383, 365
1915-16.....	252	290, 580			

Net receipts during the year 1915-16 amounted to £149,640, the operating ratio having been 48.5 per cent; £881 was carried forward from 1914-15, and other income from various sources brought the total receipts to £156,214. Interest requirements were £61,500 and net profits totaled £94,714 (\$1,084,908 m/n), equal to more than 5 per cent on the company's stock. The traffic consisted of 218,631 passengers (as compared with 339,846 in 1914-15), 358,519 head of live stock (mostly cattle and sheep), and 462,524 tons of freight (largely agricultural products).

ECONOMIC RESULTS OF FOREIGN RAILWAY INVESTMENTS.

A description has been given of practically all the privately operated railway systems in Argentina. As may readily be seen, British investors are the important holders of the railway shares. Although at the present time these British-held lines are not enjoying their usual prosperity, it is clearly apparent that, covering a period of a dozen years, the returns on sums invested have been very substantial. The results have not been confined to the dividend and interest returns. British rolling stock is employed on the railways of the Republic, the locomotives are propelled by British coal, and the trains run over British rails, with British rail joints, spikes, etc. Hundreds of British subjects have obtained remunerative positions with these companies, and the British nation has otherwise reaped substantial advantages from these enterprises. Probably there is no better illustration of the axiom "Trade follows the invested dollar" than the British-owned railways of the Argentine Republic.

TOTAL PAYMENTS OF DIVIDENDS AND INTEREST ON SECURITIES.

The following statement shows the total payments of dividends and interest for the fiscal year 1915-16 on shares and debentures of foreign railways operating in Argentina:

Central Argentine Railway.....	£2, 356, 018
Buenos Aires Central Railway (interest on debentures; stock held in Argentina).....	67, 500
Buenos Aires Midland Railway.....	^a 107, 360
Buenos Aires Western Railway.....	1, 455, 307
Buenos Aires Great Southern Railway.....	2, 659, 651
Province of Buenos Aires Railway.....	^(b)
Buenos Aires & Pacific Railway.....	977, 795
Argentine Great Western Railway.....	369, 125

^a Approximately correct.

^b For several years dividend and interest payments have been only nominal.

Argentine Great Western Railway.....	£31, 631
Bahia Blanca & North Western Railway.....	440, 750
Villa Maria & Rufino Railway.....	42, 690
Entre Rios Railway.....	160, 350
Cordoba Central Railway.....	441, 527
Argentine North Eastern Railway.....	87, 047
Central Railway of the Chubut (Patagonia).....	^a 15, 000
Province of Santa Fe Railway.....	(b)
Rosario & Puerto Belgrano Railway.....	(b)

Total 9, 211, 751

Additional statistical data concerning the privately owned railways of Argentina will be found in the Appendix (p. 483).

GOVERNMENT RAILWAYS.

The subject of State-owned railways in Argentina does not directly interest the investor other than the holder of governmental loans; therefore, only a brief account of these lines will be given. They were constructed primarily to open for settlement tracts of outlying country, and have thus made possible the development of large areas of extremely fertile territory. The scheme of railway development mapped out by the Government is a thoroughly comprehensive one, and when fully carried out will bring western and southern Patagonia and similar remote sections of the Republic into rail communication with the capital and other important centers. The principal Government lines in operation or under construction are the Central Northern Railway, the North of Argentina Railway, the Formosa & Embarcacion Railway, the Patagonian Railways, and the Diamante-Curuzu Railway.

For years prior to 1915 deficits often resulted from the operation of the Government rail lines. In 1915 there was a substantial increase in gross receipts, as compared with 1914, and a very noticeable decrease in operating expenses. The receipts and expenses of the Central Northern Railway and the North of Argentina Railway for the two years mentioned were as follows:

Items.	1914	1915
Gross receipts.....	\$m/n. 13, 164, 079	\$m/n. 14, 844, 658
Operating expenses.....	17, 227, 194	14, 774, 407
Net results.....	-4, 063, 115	+70, 251

The Central Northern Railway (meter gauge) extends from Santa Fe, via Tucuman, Jujuy, and Negra Muerta to La Quiaca on the Bolivian frontier. Following the completion of a comparatively small mileage in Bolivia, this railway will form a very important section of a through route between Buenos Aires, Rosario, Santa Fe, etc., on the south, and Uyuni, Oruro, Potosi, Cochabamba, and La Paz, Bolivia, on the north, with connections to Lake Titicaca, Arica, and Peruvian points. Branches extend to Resistancia, Santiago del Estero, Salta, Embarcacion, etc., the Embarcacion division forming a direct through route to afford connections with means of access to

^a Approximately correct.

^b Information not available.

the Bolivian Oriente, including Yacuyba and Santa Cruz de la Sierra (Bolivia). Connecting rail lines into this thinly settled territory will probably be constructed during the next few years. In the 4-year period 1911 to 1914, inclusive, approximately 950 kilometers (590 miles) of new line were completed and opened for traffic. Since the close of 1914, owing to war conditions, progress has been somewhat slower. The railway lines have been carried to considerable altitudes, the 12,000-foot mark being reached at Abra Tres Cruces.

For the year ended June 30, 1917, the gross earnings of this State line amounted to \$9,108,318 m/n, as compared with \$8,167,788 m/n in 1915-16, \$9,637,000 m/n in 1914, and \$12,421,984 m/n in 1913.

The North of Argentina Railway (meter gauge) extends from near Santa Fe westward across the pampas to San Juan, at the foothills of the Andes. There are several important branches, including a line to Cordoba. Approximately 1,512 kilometers (940 miles) are operated. The operations of this line have usually resulted profitably.

The capital investment in the two lines just described amounts to \$120,000,000 o/s.

The Formosa and Embarcacion line (meter gauge) will, when completed, be approximately 703 kilometers (437 miles) in length. This will exploit the vast and little-developed territories of Formosa and the Chaco. Approximately 300 kilometers (186 miles) of the line have been completed. Earnings, although not large, are steadily increasing.

The Diamante to Curuzu-Cuatia line (meter gauge) will, when completed, run from Diamante, on the River Parana, in the Province of Entre Rios, westward to Crespo, 34 kilometers (21 miles), where the Entre Rios line is joined and will be used to Hasenkamp. At Hasenkamp the Government continues operations on its own lines, which will extend northeasterly to Curuzu-Cuatia, on the Corrientes line of the Argentine North Eastern Railway. A rich and extensive territory is being opened up for development. Approximately 170 kilometers (106 miles) of the line have been completed.

The Patagonian State Railways (5½-foot gauge) will open to the world that vast territory. Plans call for the construction of about 2,000 kilometers (1,243 miles) of railway, of which approximately 900 kilometers (560 miles) have been opened for full or provisional traffic. The lines are handicapped through lack of rolling stock, despite which fact earnings are showing a steady increase. The lines, when fully completed, will be as follows:

(1) From Port Antonio, on the Gulf of San Matias, westward to Lake Nahuel Huapi, near the foothills of the Andes. The line may possibly be carried across the mountains to Chile to connect with the Chilean State Railways (also of 5-foot 6-inch gauge) at Osorno. The town of San Carlos de Bariloche, on Lake Nahuel Huapi, is to be the present western terminus. It is expected that this section of the Patagonian system will develop a fair traffic during the next few years. The line has been virtually completed, 448 kilometers (278 miles) being operated for passenger and freight service. Weekly passenger service is maintained.

(2) The Lake Nahuel Huapi to Puerto Deseado line. This, when completed, will extend from the western terminus of the Port Antonio-Lake Nahuel Huapi line southward to join the Comodoro

Rivadavia-Lake Buenos Aires line (see next paragraph), from which point it will follow the Deseado River in a general southeasterly direction to its mouth at Puerto Deseado, in the territory of Santa Cruz (46° S.). About 283 kilometers (176 miles), from Puerto Deseado to Colonia Las Heras, have been completed. Semiweekly passenger-train service is maintained in each direction.

(3) The Comodoro Rivadavia-Lake Buenos Aires Railway. This line terminates at the port of Comodoro Rivadavia, on the Gulf of St. George, from which point it will extend westward across Patagonia to Lake Buenos Aires. The line has been completed as far west as Colonia Sarmiento, 197 kilometers (122 miles). Weekly passenger-train service is maintained.

From January 1 to June 30, 1917, the combined earnings of the "State Development Railways," including the Patagonian lines and the Formosa to Embarcacion line, amounted to \$832,221 m/n, as compared with \$755,856 m/n in 1916.

It is expected that, once conditions in Argentina have returned to normal, the Government will continue its policy of railway expansion and development.¹

PUBLIC UTILITIES.

The public-utility field has attracted considerable European capital to Argentina. According to the national industrial census of 1910, there were 56 power stations in the Republic, in which \$48,737,877 m/n was invested. This number has since greatly increased, as will be indicated by the following statement, showing the number of cities and towns with power stations: Buenos Aires city, 1; Buenos Aires Province, 66; Entre Rios Province, 11; Santa Fe Province, 17; Corrientes Province, 8; Cordoba Province, 10; other Provinces and Territories, 19; total, 132.

This total includes a number of plants in the course of construction. Gas plants have been established in a few cities and towns; they are, however, not nearly so numerous as electric-lighting systems. No natural gas is obtainable in the country except in distant localities, and electricity has proved the favorite method of lighting throughout the Republic. Tramways have been built in most of the larger cities, there being 1,091 kilometers (678 miles) of main track in operation at the beginning of 1915.

ELECTRIC LIGHT AND POWER COMPANIES.

The most important electrical company in the River Plate countries is the German Transatlantic Electricity Co. (Compañía Alemana Transatlántica de Electricidad). The company was formed in Germany in 1898 with a capitalization of 6,000,000 marks. Work in Buenos Aires was soon begun and the enterprise developed rapidly. The company has a certain amount of competition, especially from the Italo-Argentine Electricity Co. (Compañía Italo-Argentina de Electricidad) in Buenos Aires. At the present time the capitalization of the German Transatlantic Electricity Co. consists of 110,000,000 marks bonds, 30,000,000 marks 5 per cent preferred stock, and 120,000,000 marks ordinary stock. Before the war dividends of 10 to 11 per cent per annum (10 per cent in 1914) were paid on the ordinary stock. The net profits of the Buenos Aires property for 1914

¹ The total mileage of the Argentine State Railways in operation as of December 31, 1917, was 3,815, and the net working deficit at the close of the year was \$1,724,619 m/n.

amounted to 23,327,423 marks. Other holdings of the company are as follows:

(a) Chilean Electric Tramway & Light Co., £650,000 preferred stock, £404,700 ordinary stock. This company, which operates in the city of Santiago, is capitalized at £650,000 preference shares and £500,000 ordinary shares. Part, at least, of the remaining shares are held in Great Britain. About 50 per cent in back dividends was due in January, 1918, on this preference stock, which is entitled to dividends of 6 per cent per annum, cumulative, in priority to dividends being paid on the ordinary shares. In addition to the shares, approximately £367,000 first mortgage debentures are outstanding.

(b) The entire stock of the Electric Tramways of Valparaiso, Chile, is owned, amounting to \$5,000,000 Chilean gold ordinary stock.

(c) Transatlantic Electric Tramway Co., of Montevideo, Uruguay, \$1,688,500 Uruguayan gold ordinary stock. This company operates one of the three tramway lines in the city of Montevideo.

(d) Argentine Electricity Co. (Cía. Argentina de Electricidad), Buenos Aires, \$128,000 gold ordinary stock, \$189,550 gold preferred stock. The total capitalization of this company, incorporated in 1909, is \$388,600 o/s, of which \$317,550 o/s is owned by the German Transatlantic Electricity Co., as indicated. The gross earnings for 1916 were \$674,412 m/n and the expenses were \$661,613 m/n.

(e) Light & Power Co. (Empresa Luz y Fuerza), Mendoza, Argentina, \$835,000 o/s ordinary stock, \$138,100 o/s bonds. This company furnishes light, power, and electric tramway service to the city of Mendoza. The total capitalization is \$1,000,000 o/s ordinary stock and \$138,100 o/s bonds. It is said that no dividends are paid. Approximately 19 kilometers (12 miles) of tramway lines are operated and about 6,000,000 passengers are carried annually.

Another important electrical company operating in Buenos Aires is the recently formed Italo-Argentine Electricity Co. (Compañía Italo-Argentina de Electricidad). During the year 1916 the company completed its principal power station and installed its system in important central sections of the city. On September 15, 1916, it entered into a contract with the National Government whereby electric energy is furnished to the port and customhouse of Buenos Aires. In spite of numerous delays arising from the difficulty of obtaining supplies on account of the European war, the company was able to complete its various concessions in time to receive a stipulated bonus of \$200,000 m/n national bonds. The profits of the company for the year 1916, after deducting \$271,677 m/n for writing off cost of installation, amounted to \$246,651 m/n, most of which was either credited to reserve or carried forward. No dividends were paid, it being thought wise to conserve resources owing to the war. Power houses and other buildings owned by the company were carried on the balance sheet at \$12,329,580 m/n, cables and installations at \$8,726,385 m/n, and municipal public lighting installations at \$517,090 m/n. The authorized and subscribed capitalization of this company is \$5,000,000 m/n. Gross profits for 1917 totaled \$498,623 m/n and the amount brought forward \$320,628 m/n. Patrons number 23,000.

The Electric Co. (Compañía Electricidad) of Rosario is a Belgian concern, registered in the year 1910. Its capitalization is 35,000,000 francs and its head office is in Brussels. Few details are available concerning its operations.

Among other important companies in Argentina is the Anglo-Argentine Electricity Co. (Cía. Anglo-Argentina de Electricidad), incorporated in 1911, furnishing electric current to cities and towns throughout the Province of Buenos Aires, including certain suburbs of the capital. The authorized capitalization of the company is \$10,000,000 m/n, of which \$6,200,000 m/n is paid in. In 1911 and 1912 the company paid dividends of 8 per cent each, in 1913 9 per

cent, and none since. The net profits for 1915 were \$420,655 m/n. A recent quotation for the \$100 m/n shares was \$35 m/n per share. In 1913 the shares sold as high as 110.

An important company was incorporated in England in 1911 under the name of Cía. Electricidad de la Provincia de Buenos Aires, to take over a local company of the same name. The capitalization of the company consists of £1,000,000 ordinary stock (par £4), £300,000 7 per cent cumulative participating preference stock (par £1), and £879,300 5 per cent first-mortgage gold bonds. These bonds, which closed at 80 per cent on July 27, 1914, on the London Stock Exchange, were quoted at 60 in 1916. There were no sales in 1917. Dividends on the preference shares were suspended following the May, 1914, payment. This company furnishes light and power to a number of towns in the Province, including Mar del Plata, Quilmas, Junin, and San Luis. For the year ended July 31, 1917, gross revenues were £206,072 (£189,883 in 1915-16) and net profits £54,902 (£62,728 in 1915-16). No dividends were paid. The credit carried forward to 1917-18 was £1,258.

Descriptions of several additional electric lighting and power concerns will be found in the Appendix (see p. 483). In addition to these, other companies that might be mentioned are:

(a) The Electric Co. (Compañía Electricidad) of Corrientes, supplying the city of Corrientes. The capitalization of this company is \$1,000,000 m/n, and the latest reported year's profits were \$56,000 m/n.

(b) The San Carlos Electric Co. (Empresa Eléctrica San Carlos), at Bolívar, with a capitalization of \$250,000 m/n.

(c) The Electric Light Co. (Alumbrado Eléctrico) at Rio Gallegos, Province of Santa Cruz. This is a new company, founded in 1915. The first year's operations resulted in a small profit.

Probably the most successful among the several British-controlled electric light and power companies in the interior of Argentina has been the River Plate Electricity Co., whose plant is located in La Plata. The capitalization of the company consists of £200,000 5 per cent debenture stock (par 100 per cent)—which sold at 105 per cent in pre-war days and in January, 1918, at 86 per cent—£125,000 6 per cent preference shares, and £150,000 ordinary shares. The ordinary shares (par 100 per cent) in 1912-13 sold at 262 per cent and at the closing of the London Stock Exchange July 29, 1914, were quoted at 240. In 1916 they reached the low figure of 120, and in January, 1918, sold at about 150. Dividends paid on this stock have usually been between 7 and 10 per cent, and a substantial balance has generally been earned and carried forward. Formerly the electric lighting plant in Tucuman was owned, but this was disposed of in 1914 to the Tucuman Light & Power Co. for the sum of £34,000 cash and £66,000 in debentures. The report of the River Plate Electricity Co. for the calendar year 1917 stated that the net revenues for the 12 months, after providing for the administration charges, amounted to £43,515, to which was added £15,142 carried forward. A dividend of 7 per cent was paid on the ordinary stock. Reserves, etc., on December 31, 1917, totaled £279,667. The company owns, in addition to its property and the Tucuman Light & Power bonds, a block of 5 per cent bonds of the Argentine Electricity Co. (controlled by the German Transatlantic Electricity Co.). No interest was received on these bonds in 1917, owing to the war.

GAS COMPANIES.

By far the most important of the none too numerous gas companies in Argentina is the Primitiva Gas Co., which furnishes the gas used publicly and privately in the city of Buenos Aires. This is a British-controlled company, its shares and debentures being quoted on the London Stock Exchange. In the days before the war the company was fairly profitable. Since that time, however, the increasing cost of fuel and supplies and the delay in collecting payments for public lighting have brought about a large decrease in net earnings. The approximate capital and scale of prices for the securities are as follows:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary stock (par £5).....	£1,450,000	8½	1½
Preference stock (par £5), 5 per cent cumulative.....	2,500,000	5½	3
4 per cent first debentures (par £100).....	450,000	99	78
4 per cent Buenos Aires debentures (par £100).....	225,000	99	53
4 per cent River Plate debentures (par £100).....	315,000	99	62
4 per cent debenture stock of 1911 (par £100).....	600,000	91½	59½
Total.....	5,540,000		

In the years 1911, 1912, and 1913 dividends of 8 per cent per annum were paid on the ordinary stock, in 1914 7 per cent, and none since. The preference shares received 5 per cent through 1915; in 1916 the dividend was omitted. The annual report for 1914 stated that, with £43,905 brought forward, the profit was £323,331. Owing to the financial crisis the net revenue decreased about £84,000. The results for 1915 showed a net profit of £85,500, and funds were drawn from reserves to meet the dividend on the preference shares. In 1916 a deficit of £25,500 resulted, and a fairly large floating debt has accumulated. The coal cost for 1916 averaged £3 4s. (\$15.57) per ton, as compared with £1 14s. (\$8.27) before the war. Gross receipts in 1916 were £77,021 less than in 1915. In 1917 net profits were £83,499; charges, £84,243; loss, £744. The 4 per cent first debentures are being paid off by money received from the German Transatlantic Electricity Co. in payment of purchase price for electric properties sold them in the year 1903. The amount paid to the Primitiva Gas Co. is £15,000 semiannually, to be applied to interest and sinking fund on the bond issue above mentioned. The payments expire in the year 1943. The gas mains of the Primitiva Gas Co. on December 31, 1917, totaled 1,138 miles in length, and the number of services was 201,435, as compared with 203,755 in 1914.

The South Barracas Gas & Coke Co. of Buenos Aires, and the Bahia Blanca Gas Co. are also British companies, their control and management being virtually the same. They are not large companies. The South Barracas Gas Co. is capitalized at £200,000 shares of a par value of £1. Before the war dividends averaged 4 to 5 per cent. Formerly the stock sold as high as £1 5s., but in January, 1918, it had fallen in price to 1s. 3d. per share. The securities of the Bahia Blanca Gas Co. have likewise fallen in price. The capitalization of the company consists of £150,000 ordinary "A" shares, par £5, and £70,000 ordinary "B" shares, par £1. The "A"

shares have a priority over the "B" shares to the extent of 6 per cent, and after the "B" shares receive 6 per cent both issues share alike in further disbursements. The company, which was registered in 1907, paid dividends of from 2 to 3½ per cent on the "A" shares to 1911; in 1912 the dividend was passed, and thus far it has not been resumed. The "A" shares, which are listed on the London Stock Exchange, formerly sold as high as par (5). When the European war broke out they were selling at 2½; in 1916 they declined to 1, and recently they were quoted at ¾. Loans, held by bankers, were outstanding to the amount of £40,000.

TRAMWAYS AND SUBWAYS.

Tramway development in the Argentine Republic during the past few years has been somewhat checked owing to the business depression of 1913 and the scarcity of investment capital on account of the European war. Nevertheless the larger cities of the nation are well provided with lines, which have occasioned high praise on the part of visitors to the country. The following table indicates the extent of the tramway mileage and the business handled in certain of the larger cities of the Republic:

Cities.	Miles of line.	Passengers carried.	
		1913	1914
Buenos Aires.....	493	423,661,657	387,789,519
Rosario.....	81	26,089,671	27,010,000
La Plata.....	29	6,781,546	6,113,676
Cordoba.....	27	7,950,580	6,580,000
Bahia Blanca.....	16	2,021,444	1,860,000
Corrientes.....	21	1,200,000	1,310,000
Mendoza.....	12	5,800,000	5,237,158

Returns of the tramway companies in Buenos Aires for the months of March, 1916 and 1917, show the following results, indicating business handled at the present time:

Items.	1916	1917
Length of line.....miles.....	497	486
Miles run.....	5,404,012	5,417,261
Passengers carried.....	30,311,747	30,699,455
Receipts.....\$m/n.....	2,895,060	2,921,961

The receipts shown above were earned by the various tramway companies in operation as follows:

Companies.	1916	1917
Anglo-Argentine Tramways ^a	\$m/n.....	\$m/n.....
Lacroze Tramways (Ltd.) ^b	2,308,956	2,377,875
Electricos del Sud.....	483,620	473,549
Port and City of Buenos Aires Tramways.....	34,663	34,363
	67,821	36,174
Total.....	2,895,060	2,921,961

^a The actual mileage operated by this company was 385.8.

^b The Lacroze Tramways (Ltd.) operated, as of June 30, 1917, 75 miles of tramway lines. Gross receipts for the year ended June 30, 1917, were \$5,343,714 m/n, as compared with \$5,653,226 m/n in 1915-16.

The Anglo-Argentine subway line (see p. 75) operates 14 kilometers (8.7 miles), and results for March, 1916 and 1917, were as follows:

Items.	1916	1917
Miles run.....	200,168	207,699
Passengers carried.....	2,414,775	2,404,045
Receipts..... \$m/n.	241,477	240,404

Financial returns and other data concerning the Anglo-Argentine Tramways Co. will be found in the Appendix (p. 483). Results for 1916, which was not a good year, indicate that after including the £94,120 brought forward from 1915 and after deducting (1) £96,000 carried to depreciation renewals reserve, (2) £257,366 expended for maintenance, and (3) £840,716 for interest, sinking funds, and dividend of $5\frac{1}{2}$ per cent on the first preference, there remained £50,961 to be carried forward. The appropriation for depreciation renewals reserve in 1915 amounted to £120,000, and maintenance in that year amounted to £265,963.

A comparison of the present and past prices of securities of the Anglo-Argentine Tramways Co. and the amount of securities outstanding are shown in the following table. All these securities, except the ordinary shares, are listed on the London Stock Exchange; the ordinary shares are listed in Buenos Aires:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price, January, 1918.
$5\frac{1}{2}$ per cent first preference shares.....	£3,200,000	£5	$5\frac{1}{2}$	2 $\frac{1}{2}$
$5\frac{1}{2}$ per cent second preference shares (cumulative).....	2,500,000	5	$5\frac{1}{2}$	2 $\frac{1}{2}$
4 per cent redeemable debentures.....	4,352,000	100	97 $\frac{1}{2}$	68
$4\frac{1}{2}$ per cent redeemable debenture stock.....	1,720,000	100	104	70
5 per cent redeemable debenture stock.....	6,000,000	100	105 $\frac{1}{2}$	67
Ordinary stock.....	a 3,250,000	5	(a)	(a)

a The ordinary shares of this company are not quoted, the entire issue being held by the Compagnie Générale de Tramways de Buenos Aires, a holding company formed to amalgamate the tramway systems of the city.

The total capitalization, £21,022,000, does not include outstanding securities of leased lines.

The securities of the Buenos Aires Lacroze Tramways Co., second in importance among the tramway systems of the city, are as follows:

Securities	Amount outstand- ing.	Par value.	High price since 1911.	Price January, 1918.
Ordinary shares.....	£2,187,500	1s. 8d.	(b)	(b)
Sterling 5 per cent first mortgage debenture stock.....	598,000	£100	103	74
5 per cent extension mortgage debentures.....	386,000	100	100	75
5 per cent consolidated mortgage debentures.....	1,000,000	100	88½	67
Total.....	4,171,500			

a \$1 m/n.

b Not quoted.

The Buenos Aires Lacroze Tramways Co. owns a substantial interest in the Buenos Aires Port & City Tramways Co. and the Buenos Aires City & Suburban Tramways (Ltd.). The Buenos Aires Lacroze Tramways Co. was incorporated in 1905, and its shares are held in Argentina.

The Buenos Aires Port & City Tramways Co. has outstanding the following securities:

Securities.	Amount outstanding.	High price since 1911.	Price July 27, 1914.
Ordinary shares.....	£239,508	(a)	(a)
Preference shares, 5 per cent cumulative.....	82,000	(a)	(a)
6 per cent first debenture stock.....	242,207	103	72
6 per cent extension first mortgage stock.....	332,700	(a)	(a)
Total.....	896,415		

^a Not quoted.

Interest on the bond issues went into default in 1914-15.

The Buenos Aires City & Suburban Tramways Co. is capitalized as follows:

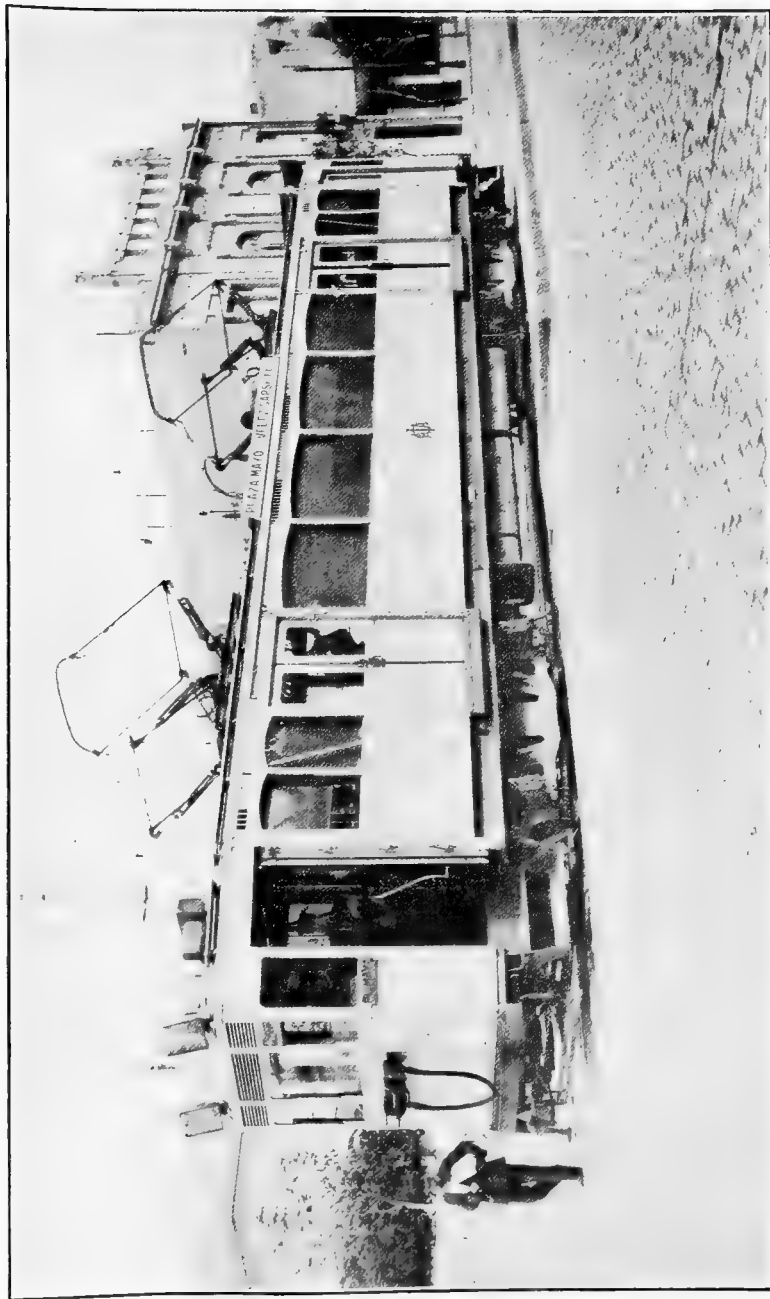
Securities.	Amount outstanding.	Par value.
Ordinary shares.....	£115,000	£1
Preference shares.....	115,285	5
5 per cent first debenture bonds.....	^a 500,000	103
Total.....	730,285	

^a Mostly pledged.

The company holds a concession to build 45 miles of line in Buenos Aires and to Las Conchas. Only a part of the line has been completed. The Buenos Aires Lacroze Tramways Co. and the Buenos Aires Port & City Tramways Co. hold a controlling interest in the securities. None of the securities are publicly quoted.

The earliest street car line in Argentina was that constructed by the Buenos Aires Great Southern Railway in Buenos Aires. This line was built in the year 1858 and ran from Plaza Constitucion to Lima and Morena Streets, then a railway terminus. This line and another constructed a few months later were controlled by railway companies and served as feeders to carry passengers between the stations and important sections of the city. The first line of importance was constructed in 1868 by Federico Lacroze. It was 7½ kilometers (4.7 miles) in length, and at that time was known as the Tramway Central (now Buenos Aires Lacroze Tramways, Ltd.). In 1870, it is said that there were 30 kilometers (18.6 miles) of horse car line in the city, and this mileage was rapidly increased during the following 20 years by the granting of several additional franchises and the construction of lines in various sections of the city. In 1887 there were 110 miles of track, the lines carrying in that year 23,000,000 passengers.

In 1902 the Anglo-Argentine Tramways Co. began to operate its lines by electricity. This line, incorporated in 1870, had assumed the leading place among the various tramway systems in the city. In



Photograph by P. S. Penfield.

FIG. 6.—TYPE OF CAR USED IN BUENOS AIRES SUBWAY.



Photograph by P. S. Penfield.

FIG. 7.—LARGE GRAIN ELEVATOR AT ROSARIO, ARGENTINA.

1899 its horse car lines carried 28,665,541 passengers, which held the record until 1903, when its electric lines carried 35,470,461 passengers. The 1904 total was 45,076,077, and the 1905 total nearly 78,000,000. Since 1905 the company has absorbed a large number of its former competitors. Its record year was 1913, when it carried 342,140,422 passengers. During the same year the Lacroze lines carried 60,603,913 passengers. This latter company's lines were electrified in 1905 by J. G. White & Co.

The splendid system of subways of which Buenos Aires is so justly proud was begun in September, 1911. The first section of the line was opened in 1913. This line extends from the Plaza Mayo, in front of the Government buildings, for 14 kilometers (8.7 miles), double tracked, passing the House of Congress and the Buenos Aires Western Railway station. Work on the section from the Retiro Station (Central Argentine Railway) to the Plaza Constitucion Station (Buenos Aires Great Southern Railway) has been suspended until after the close of the war. This line will connect the last-mentioned station with the stations of the Central Argentine Railway, the Buenos Aires & Pacific Railway, and the Cordoba Central Railway, as well as the banking and central business sections of the city. On the line now in operation stations are provided every three or four squares. An excellent and rapid service is maintained.

There are, in addition to the various tramway and subway companies already discussed, two small independent traction lines, namely, the Electric Tramways of the South (Tramways Eléctricos del Sud) and the Buenos Aires to Quilmes Railway. These are local companies, all or most of the shares being held in Argentina. The capitalization of the former as of June 30, 1916, was \$4,000,000 m/n, and the profits for the year 1915 were \$110,657 m/n. This company was founded in 1905. The Buenos Aires to Quilmes Railway (founded in 1904) is capitalized at \$200,000 o/s. A small surplus is usually earned.

Among the tramway companies operating in other cities of Argentina the following may be mentioned:

(1) The Light & Power Co. (Empresa Luz y Fuerza), of Mendoza, controlled by the German Transatlantic Electricity Co. Before the war this company paid substantial dividends.

(2) The Argentine Tramways & Power Co., which operates or is constructing about 20 miles of tramway lines in and adjacent to the city of Santa Fe, and also furnishes electric light and power for commercial purposes. This company is capitalized at the following figures: £239,250 ordinary shares, £200,000 6 per cent cumulative preference shares, and £184,500 debenture stock. During the year ended September 30, 1917, profits from operation were £13,959 (£12,256 in 1916 and total profits £12,142. The surplus after £2,000 reserve for renewal and after interest, etc., was £423. No dividends were paid.

Most of the other tramway lines operating in Argentina are considered in the Appendix (see p. 483). In common with the gas and electric lighting companies, the tramway lines have suffered through the lack of immigration, brought about by the war, through the general depression, and particularly on account of the abnormal price

of fuel. There are many excellent public-utility properties in Argentina whose shares are selling at prices far below normal. The possibilities in this field, until immigrants again find their way to the country, are limited to the possible consolidation of various properties with the view of economy in operation. As has been clearly indicated, British and German capital has been most active in this field, although fair amounts of Belgian and Italian capital have been invested. The United States has not yet had any important part.

TELEPHONE INVESTMENTS.

The first company to undertake telephone development in Argentina was the Pan-Telefono Co., established in 1881. A competitor known as the Gower-Bell Telephone Co. was established the same year. In 1883 the Union Telephone Co. was formed and took over the earlier concerns. In 1886 the United River Plate Telephone Co. began operations, taking over the property of the Union Telephone Co. The "United" has continued uninterruptedly in the field since that date, although the Cooperativa Telefónica and other competitors have since been started. The United River Plate Telephone Co. has outstanding the following capital, all of which is listed on the London Stock Exchange and actively quoted:

Securities.	Amount outstand- ing.	Par value.	High price since 1911.	Price January, 1918.
Ordinary stock.....	£1,620,000	£5	8	6½
Preference stock.....	200,000	5	5½	4½
Debenture stock.....	300,000	100	105½	80
Total.....	2,120,000			

The ordinary stock has usually received 8 per cent per annum, which is the present dividend rate. The preference shares are entitled to 5 per cent per annum, cumulative, and the debenture stock to 4½ per cent. The "United" company's lines in Buenos Aires are operated by a subsidiary, the Compañía Unión Telefónica.

The Cooperativa Telefónica, which began business in 1887, has outstanding approximately \$1,850,000 m/n shares, par \$20 m/n. The company earned a profit of \$249,935 in 1915, paying dividends of 6 per cent on the preference shares and 8 per cent on the ordinary shares. These are the usual dividend rates of the company.

Buenos Aires stands thirteenth among the larger cities of the world in the number of telephones installed per hundred inhabitants, its total per hundred inhabitants about equaling the totals of London and Paris.

That the telephone business in the interior of the country is good is indicated by the fact that the Compañía General de Teléfonos, operating the telephone lines in the city of Mendoza, usually pays dividends of from 10 to 15.4 per cent on its \$500,000 m/n stock.

WATER SUPPLY AND SANITARY WORKS.

Prior to 1891 the water and drainage works of the city of Buenos Aires were operated by a private enterprise, the Empresa Arrendataria, a British company. On October 5, 1891, the British company was dissolved and the control and administration passed to the Ar-

gentine nation, the operations being carried on by an appointed board known as the Obras Sanitarias de la Nación (Sanitary Works of the Nation). Owing to the fact that a large portion of the city had been dependent upon wells for water supply and was without satisfactory drainage and sanitary facilities, it was decided greatly to extend the water and sanitary works of the city. Accordingly, in the year 1908 a comprehensive scheme was adopted which it was calculated would amply provide for the existing population and for future growth. In accordance with this plan, the city was divided into two districts—one comprising 7,413 acres, in which the water and drainage systems established prior to 1891 were to be supplemented, and a new district of 39,575 acres, for which a new sanitary system was to be laid out. The water is to be pumped from the River Plate at a point above the city to decanting reservoirs, filter beds, gravity and reserve tanks, from which will extend a network of water mains running to all parts of the city. A pumping capacity of 8,828,500 cubic feet daily, four water reservoirs 314 by 344 feet, and seven filter beds with an area of 519,901 square feet are being installed.

The drainage system called for the construction of a main sewer with branches serving the entire city. The outlet for this sewer is in the River Plate, about 16 miles below the city.

The system in 1908, prior to the commencement of the construction work on the extension, represented an outlay of \$48,802,597 United States currency. The estimated cost of the extension was \$71,821,233, of which practically \$60,000,000 had been expended to December 31, 1916. The work may therefore be said to be nearing completion, notwithstanding the delays in procuring the necessary materials and supplies.

The revenue received by the National Sanitary Works from 1903 to 1916, inclusive, is estimated at more than \$60,000,000. Totals have increased from \$2,378,912 in 1916 to more than \$7,000,000 per annum.

Under the supervision of the National Sanitary Works, work similar to that being carried on in Buenos Aires is under way in Mendoza, Catamarca, Mar del Plata, Corrientes, and Cordoba. These sanitary works will be maintained through the raising of special taxes.

It is interesting to record the amount expended and the revenue for service (supplying water and drainage facilities) in the various districts under the supervision of the board:

Districts.	Total to Dec. 31, 1916.	Revenues in 1914.	Lottery grant.	Adminis- tration and upkeep, 1914.
	\$m/n	\$m/n	\$m/n	\$m/n
Federal Capital	115,000,000	12,725,718	.....	4,422,850
Catamarca	810,053	17,127	47,946	26,552
Cordoba	5,417,000	492,868	47,946	287,197
Corrientes	2,918,905	88,297	47,946	150,698
Jujuy	1,018,378	24,240	47,946	16,720
La Rioja y Chilecito	705,352	17,219	47,946	34,738
Mar del Plata	3,687,710	180,967	47,946	180,967
Mendoza	3,803,546	187,114	47,946	187,114
Parana	1,839,274	160,835	47,946	218,634
Salta	3,382,435	142,423	47,946	37,256
Tucuman	6,336,582	397,484	47,946	444,698
Santa Fe	3,542,232	263,955	47,946	214,977
Santiago del Estero	2,134,288	50,949	47,946	122,513
San Juan	1,183,369	67,823	47,946	55,004
San Luis	723,933	19,513	47,946	28,535

One of the most important of the privately owned waterworks is operated by the Province of Buenos Aires Waterworks Co., a British company that furnishes the necessary water supply for seven cities and towns located in the Province of Buenos Aires. The concessions covering three of the towns extend for 50 years; the remaining four cities and towns may purchase the waterworks at the end of 20 years (between 1930 and 1933) at a fair valuation, plus 20 per cent indemnity. The selling price will decrease each year after 20 years, until at the end of 40 years from the date of the original concession the works become the property of the various municipalities. The capitalization of this company is as follows:

Securities.	Dividend.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary "A" shares.....	7 per cent noncumulative.	£450,000	£5	7½	4
Ordinary "B" shares.....		4,400	1s.	(a)	(a)
Preference shares.....	5 per cent cumulative.	150,000	£5	5⅞	4½

a Not quoted.

After dividends of 5 per cent per annum (cumulative) have been paid on the preference shares, the ordinary "A" shares are entitled to 7 per cent, the balance to be divided between the "A" and "B" shares. Dividends of 5 per cent each are being maintained on the preference and "A" shares. Rates on the latter class of shares have varied from 4 to 6 per cent per annum since the beginning of operations.¹

A British company, the Consolidated Waterworks Co., furnishes the water supply for Rosario, which, as has been stated, is the second city in size and importance in the Republic. The city of Rosario may expropriate the undertaking at a price that would net, at 6 per cent per annum, an income equal to the net income for the year previous to such expropriation, plus an indemnity of 20 per cent. The company was registered in 1896, taking over the then existing properties and extending them. The company has been successful and has maintained a dividend rate of 8 per cent over a considerable period of years. Gross receipts of the company for 1916 totaled £129,472 and net receipts £69,656. Surplus after charges amounted to £32,306. Net receipts for 1917 amounted to £69,741.

The sewerage and drainage concessions for the city of Rosario are also held by British interests, the Rosario Drainage Co. (see Appendix, p. 495). The franchise expires in 1974. The company operates about 6,500 drainage connections. The company paid 3 per cent on its £369,200 ordinary stock during 1916, as compared with the maximum rate of 4 per cent. The stock was quoted in January, 1918, at 12s. per £1 share. Full dividends have been maintained on the 6 per cent cumulative preference shares (£120,000 outstanding). The company's two issues of debenture stock—£148,500 and £226,000 outstanding (first and second debenture stock)—are quoted at approximately 71 and 70, respectively, as compared with record high prices since 1911 of 87 and 84.

¹ EDITOR'S NOTE.—Information received as this monograph was going to press shows that in 1917 profits totaled £16,663 and £5,495 was brought forward from 1916. The dividend on preference shares was 2½ per cent. The balance carried forward was £15,378.

The Bahia Blanca Water Co. (also British) has a concession to furnish water to Bahia Blanca and the near-by harbors of Ingeniero White and Punta Alta. This concession is for 99 years from October 16, 1918. The authorized capital stock of the company is £500,000 preference stock and £62,500 ordinary stock. The dividend rate is usually 4 per cent per annum.

MINING ENTERPRISES.

Argentina has done much to develop its considerable mineral resources. No taxes are levied on mines and minerals, and the discoverer has prior right over all other applicants for mining properties. It is stipulated, however, that all mines must be worked by at least four men and for a period of 230 days in the year.

Thus far tungsten, gold, copper, wolfram, borax, and petroleum have been the most important minerals developed. Very few mining companies have yet reached the stage wherein large profits are realized. Exports of minerals during the past 10 years have scarcely exceeded \$3,000,000 o/s, despite the known mineral wealth of the Republic.

Gold is mined in small quantities throughout various sections of the Republic. Along the southern Patagonian coast, following heavy sea storms, a fair quantity of the yellow metal is gathered from among the sands. Alluvial digging has also been carried on in a moderate way since early colonial days. The total gold production from 1909 to 1913, inclusive, was estimated at \$865,000 o/s. The Capillita gold mines, in the district of Catamarca, are among the most important. The Neuquen Proprietary gold mines in northern Patagonia are also of fair size. Their capitalization amounts to approximately \$1,500,000 m/n, and the profits for 1915 were \$121,233 m/n.

Copper mining has been developed to a fair extent, although most of the undertakings have been hampered by lack of working capital. A number of copper deposits exist in the Andean Ridges, many of them very difficult of access. There is every reason to believe that the industry has excellent future prospects. From time to time small amounts of the mineral have been exported to Europe.

Silver was formerly mined. The ore was generally of only moderate grade, and following the decline in the price of the metal the mines were abandoned. The recent rise in silver may lead to the reopening of the mines, which are located in La Rioja.

Sulphur has been found in Mendoza, and there are coal deposits in that Province, as well as in Neuquen and the Patagonian Territories. In the so-called Chos-Malal district of Patagonia several deposits have been located, including two or three of promise. One of the coal fields extends from the Neuquen River southward for 8 or 10 leagues, keeping near the Chacayo River. One seam of coal has been discovered, several feet in thickness, that extends for several miles.

The acute shortage of coal in Argentina has led to efforts to develop some of the Patagonian coal lands, and immediate steps are being taken to open up the Epuyen-district mines. These are located in the Territory of Chubut, about 300 kilometers (186 miles) from the Nahuel-Niyeu station on the Government's San Antonio Railway, and it is proposed to carry the coal on wagons to the railway.

Fifty men were recently sent to the mines to prepare for active development work. There are waterfalls in the territory near the mines, and these will probably be utilized for water power. The quality of coal in Argentina is certainly not of the highest, nor will transportation and production costs be low. Nevertheless, the shortage of the mineral will be partly relieved, and industrial companies, railways, and public-utility companies, as well as private consumers, will be benefited. Operations in a small way have been begun on a coal deposit in the Province of San Juan, about 400 tons of coal per month being produced. The railways are also experimenting to a certain extent with Mendoza coal, a small mine being worked near the station of La Hullera on the Buenos Aires & Pacific Railway.

During 1916 development in the tungsten-mining industry continued. This mineral is mined chiefly in the Province of San Luis, but also in San Juan and La Rioja. Prior to 1916 the best year's production was in 1909, when about 900 tons were mined, this representing about one-seventh of the world's production. The minimum production during the past 10 years in Argentina has been 325 tons.

PETROLEUM DEVELOPMENT.

As in most other South American countries, the problem of obtaining fuel became acute in Argentina with the progress of the war in Europe. That country had been accustomed to depend almost wholly on the United Kingdom for its coal, which was used for ships, railways, industries, and general fuel purposes. In 1913, out of 4,046,000 tons of coal imported, 3,977,000 tons came from the United Kingdom. When the war broke out and shipping was temporarily paralyzed the country had to fall back on stocks on hand, and even though shipments were later resumed they were necessarily in much reduced quantities. Although the United States supplied a part of the demand, Argentina in the last two years or so has experienced almost a coal famine, especially among the railways and other consumers in the interior. This has directed increased attention to the supply of fuel oil in the country and the possibility that it can be made a leading source of fuel for Argentine industries so that they can be made independent of foreign production and free from the danger of suspension which has faced them for the last three and a half years.

Petroleum production, although steadily increasing in the last ten years, is still far from reaching a point where it can thus satisfy national needs. In 1916 the highest yield up to that time was recorded, the output of the wells at the Comodoro Rivadavia field being about 820,000 barrels. This was 60 per cent greater than in 1915, when the output was 516,000 barrels. From 1907, when production began, to 1916 the output was as follows: 1907, 101 barrels; 1908, 11,472 barrels; 1909, 18,431 barrels; 1910, 20,753 barrels; 1911, 13,119 barrels; 1912, 47,007 barrels; 1913, 130,618 barrels; 1914, 275,500 barrels; 1915, 516,120 barrels; 1916, 820,000 barrels.

That this production, although steadily growing, has not served to satisfy national needs is shown by the large oil-import figures, amounting to 256,024 tons in 1915, 212,398 tons in 1916, and 222,610 tons in the first nine months of 1917. The Argentine oil runs about 6.8 barrels to the metric ton, but the imported oil, which is lighter,

would go higher than this, so that the yearly imports may still be considered as approximately twice the production. Even with the rapidly advancing production, however, there is no reason to expect material decreases in importation in the near future, as the oil from the present producing regions can take the place of only certain grades of imported oil. It is also questionable whether under present conditions Argentine oil can be laid down in Buenos Aires at a price lower than that from Mexico and the United States.

Only one oil field in Argentina has as yet been exploited, but there are four regions in which oil deposits, more or less extensive, are known to occur. These are the Comodoro Rivadavia field, now being worked, located in the vicinity of the port of that name on the Atlantic coast about 850 miles south of Buenos Aires; the Salta-Jujuy field, in northwestern Argentina, in the provinces of those names; a district known as the Cacheuta field, a few miles south of Mendoza; and the Mendoza-Neuquen field, 600 to 800 miles southwest of Buenos Aires. Indications of oil in other regions are reported from time to time, and it is possible that extensive petrolierous areas are yet to be discovered, but there has as yet been no exploration of fields other than those mentioned. Except in the first-named field, indeed, little is definitely known about the possibilities of these four regions. They are estimated to cover altogether an area of several thousand square miles, but the "proved" area is less than 2 square miles.

DISCOVERY AND DEVELOPMENT OF SOUTHERN FIELD.

The Comodoro Rivadavia field has been producing oil only since 1907. In December of that year the General Board of Mines, Geology, and Hydrology of the Argentine Government was conducting geological investigations near Comodoro Rivadavia, in the course of which boring operations were being carried on, when oil was struck at a depth of 535 meters. A Government decree was immediately issued forbidding the recording or "denunciation" of claims within a certain radius of Comodoro Rivadavia, and exploration of the new field was begun by the board mentioned. Development proceeded slowly, however, and by the end of 1910 only seven wells had been sunk, four of which were for various reasons not producing. In November, 1910, a law was passed creating a reserved area for governmental exploitation covering 5,000 hectares (hectare = 2.47 acres), and in December an Executive decree placed oil operations in the charge of a special commission, the "Administrative Committee of the Comodoro Rivadavia Petroleum Fields." This commission has directed the exploitation of the reserved area since that date.

A comprehensive report of the commission, presented to the Minister of Agriculture in February, 1916, reviewed its achievements up to that time, showing that from the beginning of the working of the field 25 wells in all had been sunk, and 12 additional borings were in process at that time. The depth of the borings ranged from 526 to 565 meters, except in the case of one well, which had gone to 634 meters in search of new strata. Petroleum had been found in every well, and at the time the report was made the 21 wells in active production were giving about 14 tons per well per day. There

were no gushers in this field. For storing this oil the commission had erected at Comodoro Rivadavia four steel tanks with a capacity of 6,000 cubic meters each, and had other storage space with a total capacity of about 26,000 cubic meters (a cubic meter of this oil is about 0.93 metric ton), while two steel tanks at Buenos Aires received the oil at that port. Two tank steamers, one owned outright and one chartered, were used to transport the oil, and two others were under construction in the United States.

The commission made an appeal for more funds with which to carry on exploitation work, asserting that development of the field had been greatly retarded because of insufficient appropriations by the Government. It proposed a Government bond issue of 15,000,000 pesos paper, and if these funds were granted it estimated that the production could be made to reach 480,000 tons in 1918 and 840,000 tons in 1920, thus providing a good percentage of the national needs. In order, however, to replace entirely the coal that had been imported in normal times, it was calculated that an annual output of some 2,500,000 tons would be necessary.

The desired 15,000,000 pesos was not authorized by Congress, but development along previous lines has proceeded since the above report was made, and the output has steadily increased. In July, 1917, there were 36 wells in operation and 19 more were being bored. The President of the Republic, in a message to Congress, estimated that production in 1918 would reach at least 200,000 tons. Two new storage tanks of a capacity of 6,000 cubic meters each and two others of 1,500 cubic meters were installed at Comodoro Rivadavia, and the two tank steamers mentioned above were delivered in the latter part of 1917. The weekly output, which in the first part of 1916 amounted to 1,600 to 2,000 cubic meters, by the latter part of 1917 had reached more than 4,000 cubic meters. A six weeks' strike of the workmen in the oil fields, beginning September 29, cut down the total of the year's output, but after this was settled production was resumed at the previous comparatively high rate. The policy of the Government with regard to increasing the output is one of conservation as well as exploitation, and while the desirability of intensifying production in order to provide national fuel and make the country independent of foreign sources of supply is recognized, the Government is guarding against the policy of working the fields to such an extent that a considerable exportation would result.

GOVERNMENT AND PRIVATE OPERATION.

The question as to what is the best method to follow in developing this admittedly promising field at Comodoro Rivadavia has caused much discussion and controversy. Government operation has been criticized as resulting in too slow a development, and plans have been brought forward which contemplate either a leasing of the field to private interests or a working of the field through a sort of partnership between the Government and private capital. The Government, however, has not heretofore looked with favor on the relinquishment of control of oil operations, and there is apparently no prospect that any change in the system of management will be made. One reason why Government control is considered necessary is that the oil may be used extensively in the future for the navy,

and the oil reserve at Comodoro Rivadavia is looked on as a sort of fuel arsenal.

A few private companies have been operating outside of the reserved area. Among these may be mentioned the *Compañía Argentina de Comodoro Rivadavia*. The company has an authorized capitalization of \$5,000,000 m/n, of which \$3,000,000 m/n is outstanding. The company, in addition to its oil wells, tanks, and equipment, has constructed 7 kilometers (4.3 miles) of railway, which connects with the Government railway to the near-by port of Comodoro Rivadavia, as well as 3 kilometers (1.9 miles) of pipe lines. Natural gas and petroleum have both been found in good quantities, and the property, although still largely in its development stages, seems to be highly promising. Other companies in the field are the *Compañía Nafta (Naphtha) de Comodoro Rivadavia*, capitalized at \$275,000 m/n; the *Compañía Petroleo de Comodoro Rivadavia*, capitalized at \$1,077,000 m/n, etc.

QUALITY OF OIL.

As to quality, the Comodoro Rivadavia oil is heavy, with an asphalt base and a specific gravity ranging from 0.922 to 0.940, according to the United States Geological Survey, and on distillation yields 1.5 to 3.5 per cent of naphtha and gasoline, 15 to 19 per cent of illuminating oils, and 77 to 85 per cent of lubricants, fuel, and coke. This is heavier than the better grades of oil produced in the United States. The Argentine product has heretofore been used almost entirely as fuel, although the statement has been made that it will distill readily. It will doubtless find its chief usefulness as a fuel, to be used for combustion purposes as a substitute for coal. It is so used now by a number of Argentine factories, a few locomotives (although the railways for the most part are burning the hard quebracho wood now instead of coal), and some other fuel consumers. The "frigoríficos" in many cases use fuel oil, but this seems to be mostly if not entirely Mexican oil, imported by the Anglo-Mexican Oil Co., one of the two large private concerns that handle oil in Argentina. The other is the West India Oil Co., but this company imports oil from the United States for refining.

MARKED INCREASE OF PRICES—UNDEVELOPED FIELDS.

Prices of Argentine oil have naturally risen to high levels, in sympathy with the increases in prices of coal and costs of production and transportation. It has been the policy of the Government to offer the Comodoro Rivadavia product at little more than cost price, and in 1916 it was being supplied to factories at the rate of \$24 paper (\$10.17 United States currency) per metric ton. The commission, however, found it necessary to raise the price on March 1, 1916, to \$40 paper, delivered to customers in their own containers at Buenos Aires, and since then it has mounted rapidly, reaching at successive steps \$50, \$60, \$70, \$85, and finally in December, 1917, \$95 (\$40.28 United States currency) per metric ton. As production has been increasing materially, the income from sales at these high prices has enabled the commission to proceed further with its development plans.

The oil in the other three fields besides the Comodoro Rivadavia is of somewhat different quality, having a paraffin instead of an asphalt base. The specific gravity of one sample of the Mendoza product was about the same as that of the coast oil, while the tests of Salta-Jujuy oil indicate a greater percentage of lighter constituents. It is asserted that samples from this district show a grade equal to that of Pennsylvania or Ohio, and one Government analysis gives 5 per cent of light oil, 30 per cent of kerosene, and 52 per cent of lubricating oil. It is very evident, however, that further explorations will have to be made in all these fields before the quality of the mineral, extent of deposits, and value to the industries of the country can be even approximately determined. Such exploration must await better transportation facilities, one big handicap to boring operations heretofore having been lack of water and supplies in the oil districts and difficulty of getting these necessities into these districts and the oil out.

[The foregoing data, compiled for the most part in the Latin American Division of the Bureau of Foreign and Domestic Commerce, were taken from a number of different sources, to which readers are further referred. The files of the Review of the River Plate, published in Buenos Aires, contain numerous notes and reports on the petroleum industry, and developments are followed rather closely each week. A résumé of information regarding all Argentine fields by Frederick G. Clapp appeared in the Bulletin of the American Institute of Mining Engineers for October, 1917. The United States Geological Survey, in its annual reviews of the petroleum industry of the world, includes accounts of Argentine production, the latest separate report now available being that for 1915. Two good accounts of oil production in Argentina have appeared in Commerce Reports, being translations of articles in *La Nación*, Buenos Aires. These are to be found in the issues for June 2, 1917, and May 27, 1915 (correction of figures of production in issue of October 1, 1915).]

UTILIZATION OF FOREST RESOURCES.

The forest areas of Argentina are proving sources of considerable national wealth. In the northern and northwestern Provinces development work is steadily being carried out and large returns are being realized by the various companies interested in the industry. The principal forest resources of the Republic are in the Provinces of Santa Fe, Santiago del Estero, Cordoba, and Tucuman, and in the Territory of the Chaco. In western and southern Patagonia rich timberlands also exist, covering relatively large areas.

THE QUEBRACHO INDUSTRY.

As is the case in the Republic of Paraguay (see p. 313), the quebracho (break-ax) is by far the most valuable tree found. This tree, which exists in the more northerly Provinces and Territories only, grows in two varieties, red and white, takes 90 to 100 years to come to full maturity, and reaches a height of 80 feet and a diameter of about 2½ feet. The logs of the quebracho are annually exported in considerable quantities for the extraction of tannin, while an increasing quantity of the tannin itself is being extracted locally and likewise shipped abroad. An extensive local market has been found for the quebracho. For some years it has been extensively used by the railways for sleepers. At the present time, although little railway construction is going on in the Republic, large amounts of the wood are used in the locomotives as fuel, owing to the acute shortage

of coal, and a substantial amount is used for a similar purpose by manufacturing concerns.

In former years Great Britain was the principal purchaser of the quebracho extract or tannin, but since the outbreak of the war the United States has gradually come to take the largest quantity. In June, 1917, the United States purchased 3,821,220 kilos (8,424,380 pounds), Great Britain 2,623,130 kilos (5,782,966 pounds), France 2,569,000 kilos (5,663,630 pounds), Norway 1,100,000 kilos (2,425,062 pounds), Italy 1,026,353 kilos (2,262,698 pounds), and Spain 20,000 kilos (44,092 pounds).

Exports of quebracho and quebracho extract during recent years have been as follows:

Years.	Quebracho extract.		Quebracho logs.	
	Tons.	Value.	Tons.	Value.
		<i>\$o/s</i>		<i>\$o/s</i>
1901.....	4,310	431,000	198,920	1,989,200
1906.....	30,839	2,162,950	230,100	3,425,101
1911.....	68,431	4,980,027	438,219	6,897,435
1912.....	74,910	4,836,860	279,342	3,568,557
1913.....	79,684	4,974,687	383,964	4,988,349
1914.....	80,153	5,186,946	291,942	3,777,124
1915.....	100,213	15,873,372	209,679	2,684,408

Probably the largest concern interested in the quebracho industry is the British-controlled Forestal Land, Timber & Railways Co. This company is capitalized at the following figures:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary stock.....	£1,545,849	£1	3 $\frac{3}{4}$	2 $\frac{1}{2}$
Preference stock (6 per cent).....	1,545,850	1	2 $\frac{1}{2}$	1 $\frac{1}{2}$
5 per cent first mortgage refunding bonds.....	1,158,700	100	105	103
5 per cent mortgage debentures of 1914.....	1,172,100	100	104 $\frac{1}{2}$	104
Total.....	5,422,499			

The company's balance sheet as of December 31, 1916, stated that general reserves amounted to £772,925 and special reserve to £450,000. The depreciation fund amounted to £773,212. A total of £800,000 has been set aside for war-profit tax and other contingencies. The amount carried forward to the credit of preference shares as of December 31, 1916, was £46,061, and to the credit of ordinary shares £138,162.¹ The preference shares are entitled to cumulative dividends of 6 per cent per annum and to 25 per cent of remaining profits. The ordinary shares are entitled to the balance. The average dividend paid during the 11 years to and including 1916 has been 11 $\frac{1}{2}$ per cent on the preference shares and 16 $\frac{1}{2}$ per cent on the ordinary shares. The rates for 1915 and 1916 on the two classes of stock were 12 per cent and 15 per cent on the preference and 18 per cent and 27 per cent on the ordinary shares. During the 11-year period previously mentioned the item of "good will," which stood at £405,000, was

¹ In 1917 the profits after depreciation, charges, etc., totaled £822,395, which was appropriated as follows: Reserve for excess profits, etc., £200,000; special reserve account, £150,000; preference shares dividend (12 per cent), £187,661; balance, £284,733. The dividend on the ordinary shares was 18 per cent.

written off, and large capital expenditures were made. Net profits for the year 1916 amounted to £1,614,898, as compared with £900,947 in 1915. The excess-profit tax for the year amounted to £600,000.

In addition to its forest areas, the Forestal Co. owns large cattle ranches, about 300 leagues of cleared land lying unused, and a considerable mileage of light railways. The total area of all properties, including about 650,000 acres leased, is about 5,500,000 acres. All the stock of the Puerto Ocampo Railway, the *Compañía Argentina de Lanchas*, and the New York Quebracho Extract Co., of New York City, is owned, as well as about £129,200 of the £355,920 shares of the Development Co. of Santa Fe (see Appendix, p. 491). The company guarantees the interest on the bonds of the *Quebrachales Fusionados*, which are outstanding to the approximate amount of £100,000.

The *Sociedad Anónima Quebrachales Fusionados*, while interested primarily in Paraguay, has nevertheless large properties in the Chaco and elsewhere in Argentina. The company was incorporated under the laws of Argentina in 1906. The capital stock amounts to \$1,750,000 m/n, having been reduced from \$7,000,000 m/n in 1913, in which year the par value of the shares was reduced from \$100 m/n to \$25 m/n. The total acreage of lands owned is approximately 650,000. The properties of the company are carried on its books at a valuation of \$12,674,835 m/n, of which \$4,237,489 m/n represents the valuation of the Argentine property, located at Puerto Tirol. At the close of 1916 about 108 leagues of land in the two Republics were covered with quebracho trees and three industrial establishments (which are practically townships) were owned, these establishments having a total producing capacity of 18,000 tons. The company owned and operated 121 kilometers (75 miles) of railway equipped with 9 locomotives and 306 cars. Its property also included 234 carts and 2,868 oxen.

The profits for 1917 totaled \$1,614,279 m/n; after amortization, etc., \$1,452,829 m/n. A dividend of \$10 m/n (40 per cent) was declared. The sum of \$607,546 m/n was appropriated to reserve and provision funds. Formerly the dividend payments were only nominal; before the war they rarely exceeded 2 per cent per annum. The \$25 m/n shares were quoted on the Buenos Aires Stock Exchange in September, 1917, at \$67 m/n per share and prior to selling ex-dividend early in 1917 were quoted at \$82 m/n, as compared with an average price of \$10 m/n to \$11 m/n in 1914. The entire output of the company for the year 1917 was disposed of at very high prices. An increase in capital to \$5,250,000 m/n is contemplated, new shares to be distributed among present shareholders.

Other companies interested in the industry have benefited greatly through present demands and high prices. The shares of the *River Plate Quebracho Co.*, which has a capitalization of \$600,000 o/s and which has not paid dividends for a number of years, have risen in price from \$0.45 o/s per \$1 o/s share to the September, 1917, quotation of \$1.05 o/s, and operations are beginning to show substantial profits.

OTHER FOREST ACTIVITIES—STATISTICS OF INDUSTRY.

Other branches of the forestal industry have developed substantially during recent years. Yerba mate or Paraguayan tea is gath-

ered in the northern forests in large quantities, there being a large market for the tea throughout the River Plate Republics. There is also a general demand for various kinds of woods for cabinet-making, building purposes, fence posts, firewood, etc. According to the industrial census of 1910, there were in that year 283 aserraderos or sawmills, with a total capital of \$16,808,728 m/n and annual sales of \$36,153,831 m/n; nine quebracho factories with capital of \$8,248,013 m/n and annual sales of \$9,472,868 m/n; 100 forestal exploitation and development companies with capital of \$17,273,637 m/n and yearly sales of \$12,286,260 m/n. These figures are probably considerably below the present status of the industry. The annual value of forest products exported since 1909 has varied between \$8,927,362 o/s and \$12,254,605 o/s. Recently interest developed in a project to exploit certain Patagonian forest areas for the production of pulp for paper making. Tests that have been made prove that a ton of pulp might be produced from $3\frac{1}{2}$ trees.

To protect its forestal areas the Government has appointed inspectors and technical experts and has passed laws for conservation.

PASTORAL AND AGRICULTURAL DEVELOPMENT.

It is in the pastoral and agricultural areas of Argentina that its greatest source of wealth lies. The splendid character of the nation's farms and the extent of the cattle and sheep ranches have won world-wide praise. The richness of the cereal lands has been the principal cause of the great influx of settlers who have brought about the rapid development of the Republic. It is to the "camp"—the vast stretches of farming country—that Buenos Aires, Rosario, and the other large cities owe their existence. Agricultural and stock-raising activities have been responsible for the splendid network of railways of which the nation is so justly proud. The vast increase in land values that has followed the growth of the country has created numerous great fortunes for those who bought when prices were low and who successfully managed their properties.

STATISTICS OF LIVE STOCK.

The number of domestic animals as reported in the live-stock census of 1908 and the estimated total in the year 1915 were as follows:

Live stock.	1908	1915	Live stock.	1908	1915
Cattle.....	29, 116, 125	29, 500, 000	Sheep.....	67, 211, 754	80, 000, 000
Horses.....	7, 531, 376	9, 700, 000	Asses.....	285, 088	340, 000
Mules.....	465, 037	580, 000	Pigs.....		3, 050, 000
Goats.....	3, 245, 086	4, 520, 000			

In the year 1857 cattle formed 25 per cent of the wealth of the nation. In 1864 there were 10,215,000 cattle; 20 years later there were 14,171,000; in 1894 the total was 21,701,526. In the last-named year horses totaled 4,446,859, and the value of all live stock in the Republic was estimated at \$200,600,000 o/s. In 1908 the estimated value was \$413,021,767 o/s, and in 1915 \$782,000,000 o/s was given as the total

figure. At present prices the live stock of Argentina would probably realize \$1,000,000,000 o/s.

Cattle and sheep are raised practically all over the pampas and in the north and south of the country. The industry in Patagonia is practically confined to sheep raising. Although there still are areas that have not been taken up for stock-raising purposes, the possibility of any considerable increase in the number of animals raised lies in the improvement of existing pasture lands through the cultivation of lucerne and other pasturage. During recent years the stock has been greatly improved through the importation of valuable bulls, rams, and other animals. During the period 1901 to 1914, inclusive, a large number of pedigreed animals were imported, including 12,761 cattle, 34,597 sheep, 5,558 horses, 3,488 pigs, etc.

In the year 1830 there were approximately 3,000,000 sheep in Argentina, and the amount of wool exported was 6,000,000 pounds. In the eighties the number of sheep was approximately equal to the present total, and since that period the industry has not retained its relative importance. Great areas of Patagonian lands will probably always remain pasture land, although it is likely that in time the number of sheep will show a decrease, following the extension of irrigation after the war.

BRITISH COMPANIES IN THE FIELD.

The pastoral industry in Argentina has naturally attracted considerable amounts of foreign capital. A number of pastoral companies have been formed, backed by British and German capital. Among the British companies in the field mention may be made of the following (these include agricultural development companies):

Companies.	Capital.	Companies.	Capital.
Argentine Estates of Bovril (Ltd.) a...	£1,268,914	Leach's Argentine Estates b.....	£1,800,000
Argentine Southern Land Co.....	280,000	Port Madryn Land Co.....	125,000
Argentine Land & Investment Co.....	740,000	Rio Negro Land Co.....	300,000
Argentine Northern Land Co.....	329,487	River Plate Land & Farming Co. c...	40,000
Cordoba Land Co.....	1,537,382	South American Cattle Farms (Ltd.) d.	765,480
Development Co. of Santa Fe.....	355,920	Tekla Land Co.....	200,000
Guatrache Land Co.....	405,512		

a Also operates meat-extracting factories.

b Operates in Argentina and Uruguay.

c Also operates sugar plantations.

d 10 estancias in Argentina and 9 in Paraguay.

A number of the companies listed above are described more fully in the Appendix. Nearly all of the companies are on a dividend basis, and their shares are generally considered sound investments.

British investments in land, cattle, sheep, and farming companies probably amount to about \$50,000,000 United States currency. Belgium has about \$3,500,000 similarly invested.

A complete list of German estancias and ranches is not available.

INVESTMENT OF ARGENTINIAN CAPITAL.

The extent to which local Argentinian capital is invested in land, cattle, and farming enterprises is indicated by the following table of large public companies:

Companies.	Capitalization.			Profit or loss, 1914-15. ^a
	\$o/s.	\$m/n.	£ sterling.	
Argentina Hidraulico-Agricola		2,000,000		—\$78,888m/n
Brucklay Estancia Co. (British)			34,000	£3,199
Caapucu	100,000			
Consuelo Estancia Co.		500,000		\$68,727m/n
El Albardon		5,980,000		—\$3,881m/n
El Nuevo y Medio	800,000			
El Sosneado		4,050,000		
Estancia Buena Vista		215,000		\$12,493m/n
Estancias Cochiquingan (Ltda.)	90,000			\$11,837o/s
Estancias y Colonias Trenel		6,000,000		\$1,039,330m/n
Estancias y Colonias Walker		2,000,000		\$272,619m/n
Estancia Juan Duggan (Ltda.)		2,500,000		\$768,106m/n
Estancia La Pelada	600,000			
Estancias O'Farrell (Ltda.)		2,000,000		\$177,418m/n
Estancia La Madrugada (British)		343,635		\$1,484m/n
Estancia Pulmari (Ltda.)		470,000		\$2,500m/n
Fuerta Olimpo	440,000			\$56,861o/s
Ganaderia Mate Grande (Ltda.)		600,000		\$119,216m/n
Granja Blanca (wholesale milk business)		1,000,000		
Samuel B. Hale Co. (Ltd.)	5,040,000			\$728,168o/s
Haras Pelayo		340,000		\$23,867m/n
Hill Station		300,000		\$4,587m/n
La Belgica	(b)	(b)	(b)	\$29,879m/n
La Estanciera	1,801,400			\$34,232o/s
La Marianita	800,000			\$91,203o/s
La Martona	2,005,200			\$80,541o/s
La Peninsula		183,000		\$24,338m/n
La Peregrina		800,000		\$57,838m/n
La Salamanca		375,000		
La Tandillera		5,000,000		
La Union Argentina		573,300		
La Cabezas Estancia Co. (British)			196,582	
Las Vegas		1,070,000		\$300,272m/n
Los Palmaras		1,323,500		—\$103,088m/n
Mulak Ajke Sheep Farm		250,000		\$185,534m/n
Estancia Padernales	500,000			—\$149,803o/s
Productos Kemmerich	(c)	(c)	(c)	(c)
San Juan Estancia Co. (British)			75,000	\$11,930m/n
San Guillerms Co. (Ltda.)			32,750	£3,963
Tierras y Dominios La Patagonia	240,000			\$103,914o/s
Helvetia Land Co. (Anglo-Swiss)			50,000	£13,100
Monte Dinero Sheep Farming Co. (British)			24,000	\$110,842m/n
River Plate Dairy Co.	500,000			\$141,000o/s
Scottish Estancia Co. (British)	186,000			
Tubantia Co. (Netherlands)	(d)	(d)	(d)	\$10,824m/n
Union Pastoral	(e)	(e)	(e)	
Vicente Peluffo & Co.		2,720,000		\$503,912m/n

^a Losses are indicated by minus signs.

^b This is a Belgian company capitalized at 1,250,000 francs.

^c The head office of this company is in Antwerp, Belgium. The paid-in capital is 14,000,000 francs, and the profits earned for the year were 1,204,097 francs.

^d The shares of this company (amount not stated) are held in the Netherlands.

^e Operates the estancias La Puma, Rincon, and Los Valles; head office in Antwerp, Belgium; capitalization 3,000,000 francs.

The statements of profits in the above table are those of a year in which earnings were generally a good deal below normal, and from such returns as are available it seems likely that the 1916 results showed a considerable increase.

EXPORTATION OF PASTORAL PRODUCTS.

Exports of animals are now largely confined to horses and mules for use in the war. A small number of cattle and sheep are sent across the mountains to Chile and Bolivia, and a somewhat larger number to Uruguay. Brazil and Paraguay also, from time to time, are purchasers of live stock from Argentina. Exports of this kind for 1913, a normal year, amounted to more than \$9,000,000 o/s.

Estimates compiled by the Government a few years ago indicated that the Provinces of Corrientes, Buenos Aires, and Santa Fe con-

tain normally the largest number of cattle, while the Provinces of San Luis, Entre Rios, Buenos Aires, Corrientes, and the Territories of Pampa, Rio Negro, Neuquen, Santa Cruz, Chubut, and Tierra del Fuego contain most of the sheep.

The shortage of wool in the world's markets has caused an unprecedented demand for the Argentine product. Exports of wool for the fiscal year ended September 30, 1917, were 349,622 bales, as compared with 299,207 bales in 1915-16, 304,517 bales in 1914-15, and 305,606 bales in 1913-14. The United States purchased nearly two-thirds of the supply in 1916-17. Sheepskins were exported during the first seven months of 1917 to the amount of 29,081 bales, as compared with 19,226 bales for a similar period in 1916 and with 34,807 bales for the year 1916, 44,445 bales for the year 1915, 29,602 bales for the year 1914, and 41,541 bales for the year 1913.

Consul General W. Henry Robertson, stationed at Buenos Aires, reports, under date of March 18, 1918, that notwithstanding the world's scarcity of tonnage the exportation of Argentine meat has not suffered, as is evident from statistics recently published. In a report on the development of the country's meat exports from the year 1910, prepared by the Director General of National Statistics and published in the Review of the River Plate, it is shown that the shipments of meat have increased from 362,385 tons for 1910 to 559,216 tons for 1917. The total quantity exported for each year since 1910 and its total value in Argentine gold pesos of \$0.965 each were as follows:

Year.	Tons.	Gold pesos.	Year.	Tons.	Gold pesos.
1910.....	362,385	48,431,939	1914.....	459,853	91,009,752
1911.....	441,564	60,931,362	1915.....	442,546	97,623,275
1912.....	455,842	65,000,465	1916.....	544,748	129,277,603
1913.....	443,086	76,373,504	1917.....	559,216	137,085,392

Canned meat is an item of daily increasing export. In the years 1910 to 1914 it fluctuated between 13,000 and 16,000 tons per annum, rising in 1915 to 32,514 tons, and attaining in 1916 to 45,196 tons. In 1917 the 1916 figure was more than doubled, the amount being 102,153 tons.

The following table shows in detail the quantity and the value (in gold pesos) of each of the products exported from 1910 to 1917 which make up the classification of "meat in general":

Meat	1910		1911		1912		1913	
	Tons	Gold pesos.	Tons.	Gold pesos.	Tons	Gold pesos.	Tons.	Gold pesos.
Frozen beef.....	245,267	34,337,380	297,738	41,981,058	317,620	46,372,520	332,054	59,105,612
Chilled beef.....	8,441	1,181,740	15,096	2,128,536	25,231	3,683,726	34,175	6,083,150
Frozen mutton.....	75,102	8,788,934	85,916	10,224,004	70,175	8,631,525	45,928	6,981,056
Frozen pigs.....	1	151	.....	.....	.....	.....	.....	.....
Jerked meat.....	9,442	1,033,020	12,120	1,661,615	8,824	1,400,748	3,910	658,097
Canned meat.....	13,030	2,260,078	16,127	3,834,879	18,331	3,604,218	13,014	2,285,158
Frozen offal.....	11,102	832,636	14,567	1,101,270	15,661	1,307,728	14,005	1,260,431
Total.....	362,385	48,431,939	441,564	60,931,362	455,842	65,000,465	443,086	76,373,504

Meat.	1914		1915		1916		1917	
	Tons.	Gold pesos.	Tons.	Gold pesos.	Tons.	Gold pesos.	Tons.	Gold pesos.
Frozen beef.....	328, 278	66, 640, 434	351, 036	75, 823, 776	411, 547	94, 079, 710	355, 842	77, 315, 569
Chilled beef.....	40, 690	8, 260, 070	11, 703	2, 527, 848	16, 153	3, 692, 578	38, 995	8, 940, 426
Frozen mutton.....	58, 688	9, 918, 272	35, 035	6, 341, 335	51, 317	9, 929, 945	39, 820	7, 834, 100
Frozen pigs.....	334	33, 379	277	88, 656	1, 345	268, 974	764	160, 568
Jerked meat.....	2, 383	570, 796	213	50, 941	1, 120	268, 059	7, 613	2, 108, 253
Canned meat.....	13, 590	3, 830, 956	32, 514	11, 373, 638	45, 197	18, 748, 916	102, 153	37, 637, 011
Frozen offal.....	15, 890	1, 755, 845	11, 158	1, 417, 081	18, 069	2, 289, 421	14, 029	3, 080, 465
Total.....	459, 853	91, 009, 752	442, 546	97, 623, 275	544, 748	129, 277, 603	559, 216	137, 085, 392

THE DAIRY INDUSTRY.

The dairy industry is beginning to attain substantial importance, and during recent months the Republic has been exporting large quantities of butter and cheese to Europe. A recent estimate placed the number of dairies in the country at 1,259, producing milk and its products to the value of \$19,000,000 m/n. The present figure is probably about \$25,000,000 m/n. There is certainly room in Argentina for development in this industry along the scientific lines followed by large American companies, and there is a possibility that American capital thus invested would yield a very substantial return. At present the chief difficulty is the scarcity of labor. Among the various milk products that are successfully marketed is casein. The Compañía Nacional de Caseina, capitalized at \$350,000 m/n, is the leading manufacturer in the field. Net profits for 1915 were \$72,843, and substantial dividends were paid. The total production of casein for the year 1912 was 5,257,207 kilos (11,590,144 pounds).

CEREAL CROPS.

The agricultural industry has already been treated in a general way. However, a few necessary statistics will here be shown, indicating acreage, annual production and exports, etc. It is only through an appreciation of these figures that the extent of agricultural development in Argentina may be realized.

The area under principal grain crops (in acres) has been as follows:

Grains.	1900-1901	1913-14	1914-15	1915-16	1916-17
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Wheat.....	8, 352, 000	16, 243, 500	15, 471, 000	16, 420, 000	16, 089, 000
Linseed.....	1, 501, 000	4, 257, 500	4, 262, 500	4, 000, 500	3, 207, 500
Maize.....	2, 493, 500	10, 260, 000	10, 386, 000	9, 928, 500	8, 969, 000
Oats.....	80, 500	2, 869, 000	2, 821, 500	2, 565, 000	2, 525, 500

The tonnage of grains exported during 1915 and 1916 was as follows:

Grains.	1915	1916
	<i>Tons.</i>	<i>Tons.</i>
Wheat.....	2, 448, 724	2, 273, 205
Linseed.....	1, 001, 542	638, 654
Maize.....	4, 349, 951	2, 864, 209
Oats.....	591, 212	784 734
Barley.....	75 946	53, 032

The record production of various grains was in 1913. During that year the production in tons amounted to the following (the years 1893 and 1903 are shown for purposes of comparison):

Grains.	1893	1903	1913
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Wheat.....	1,593,000	2,823,853	5,100,000
Linseed.....		711,353	1,130,000
Oats.....		57,000	1,682,000
Maize.....	a 2,240,000	3,783,450	b 4,995,000

a Year 1895; figures for 1893 not available.

b As compared with 7,515,000 tons in 1912, 6,684,000 tons in 1914, and 8,600,000 tons in 1915.

The average wheat and linseed yield (bushels per acre) has been as follows:

Provinces.	Wheat.		Linseed.	
	1912	1913	1912	1913
	<i>Bushels per acre.</i>	<i>Bushels per acre.</i>	<i>Bushels per acre.</i>	<i>Bushels per acre.</i>
Buenos Aires.....	9.1	10.7	2.4	11.4
Cordoba.....	11.0	12.5	8.7	9.2
Entre Rios.....	10.5	10.9	8.4	10.6
Pampa.....	10.0	11.4	9.8	8.5
Santa Fe.....	7.8	11.4	4.9	10.4

During 1915 there were 395,000 acres under barley and 92,600 acres under rye.

The so-called cereal zone of Argentina comprises the Provinces of Buenos Aires, Cordoba, Entre Rios, Santa Fe, a section of San Luis, and practically all of the Pampa Central Territory—covering in all about 200,000,000 acres. The soil of this district is famous for its fertility, the climate is good, and the rainfall is usually sufficient. There is no snow, and water is generally obtainable either from brooks or ponds or at a slight depth. The country is absolutely level and not unpleasing to the eye. Living conditions in the estancias are pleasant in the extreme, and the life of an agriculturist in Argentina has many advantages and charms not existing elsewhere. The railway systems that traverse the cereal zone, in every direction, form a ready means of communication with the various ports. Practically all of the agricultural zone, in fact, is within less than 500 miles of the shipping ports, the most important of which are Buenos Aires, Bahia Blanca, La Plata, and Rosario.

The Government, through its Mortgage Bank, and in other ways, is lending considerable aid to agricultural development; the small proprietor is being assisted, and seeds and herbs are admitted free of duty, as are also certain classes of agricultural machinery. After the close of the war, the agricultural activity of Argentina will recover from its temporary check, and the Republic will rise to an even higher place among the world's great nations.

THE SUGAR INDUSTRY.

Sugar was produced in Argentina at as early a date as 1750. However, it was not until between 1835 and 1840 that any real develop-

ment began. In the latter year the first sugar mill was erected, its location being in the Province of Tucuman. In 1880 improved sugar machinery was brought into use, and in 1884 the production had risen to 55,000 tons. During recent years the production has been as follows: In 1906, 116,287 tons; in 1907, 109,445 tons; in 1908, 161,662 tons; in 1909, 127,882 tons; in 1910, 148,509 tons; in 1911, 180,092 tons; in 1912, 147,299 tons; in 1913, 276,140 tons; in 1914, 335,955 tons; in 1915, 149,299 tons; in 1916, 84,069 tons; and in 1917, 88,076 tons.

The 276,140 tons of sugar produced during 1913 were the result of the working of 38 mills—27 in the Province of Tucuman, 3 in Jujuy, 3 in the Chaco Territory, 2 in Santa Fe, and 1 each in Salta, Corrientes, and Formosa. The total amount of cane handled during the year was 3,131,018 tons, of which 2,611,114 tons were handled by the mills in Tucuman, 399,790 in Jujuy, 65,157 in the Chaco, 27,008 in Santa Fe, 19,026 in Salta, 7,108 in Corrientes, and 982 in Formosa. The average yield for the year was 8.8 per cent, the best results being obtained in Jujuy, where the average was 9.4 per cent. The yield in Tucuman was 8.8 per cent. Approximately 85 per cent of the 250,000 acres under sugar cultivation are located in Tucuman, 9 per cent in Jujuy, and the remainder is scattered. Formerly Santiago del Estero stood second to Tucuman in sugar production; to-day, however, its production is insignificant. The sugar planters of Argentina have been extremely unfortunate in not being able to obtain normal crops since the outbreak of the war and the rise in prices.

A considerable amount of local capital is interested in sugar mills and in plantations, in addition to several foreign companies, the most important of which is the British-controlled Leach's Argentine Estates, which has a substantial dividend record and of which mention is made elsewhere. The output of this company for 1914-15 amounted to 26,461 tons of sugar. About \$10,000,000 United States currency is invested in the enterprise.

Among the various local companies interested in the industry is the Sociedad Anónima Azucarera Argentina. Its capitalization consists of \$1,000,000 o/s 7 per cent debentures and \$1,500,000 o/s shares. Dividends for a number of years have averaged 15 per cent, although, since the war, they have fallen off somewhat—10 per cent for 1915. Profits for the year 1916 amounted to \$322,939 m/n, as compared with \$442,085 m/n in 1914. The September, 1917, quotation for the company's shares was 130 per cent.

The Azucarera Tucumana is another very important local sugar company. Its capitalization is approximately \$4,000,000 o/s, and the average pre-war dividend rate was approximately 6 per cent per annum. For the year ended March 31, 1916, the profits were not sufficient to warrant dividend payments. No recent quotation for the shares has been made public, the last recorded sale having taken place in 1913 at 98 per cent.

The Refinería Argentina is one of the largest enterprises of its kind in Argentina. Its paid-up capital is \$2,000,000 o/s. Dividends before the war averaged $7\frac{1}{2}$ per cent; for the years 1915 and 1916 the rate was 6 per cent. No recent quotation for the shares is available (97.50 in 1912).

Three other important sugar refineries and properties, locally owned, are the Ingenio y Refinería Santa Ana (Ltda.), the Ingenio

San Miguel, and the Nueva Compañía Azucarera y Refinería Ledesma (Ledesma, Jujuy). The respective capitalizations of these three companies are \$8,500,000 m/n, \$1,000,000 m/n, and \$10,000,000 m/n.

MEAT-PACKING COMPANIES.

The extent and development of the great meat-packing industry in the River Plate countries is little realized by those who have never with their own eyes investigated this field of enterprise. Argentina, of course, stands foremost in this industry, although Uruguay, Brazil, Paraguay, and other South American countries are progressing, particularly as cattle producers. Despite the increasing share of the world's meat trade that is being obtained by these Republics, Argentina will not lose its prominence. The United States, which in 1907 exported 282,000,000 tons of beef, so increased in population that at the outbreak of the war the annual exports had dropped to 6,400,000 tons, while the exports of beef cattle dropped from 585,000 to 22,000 head. In addition, the United States has been purchasing beef from Argentina and elsewhere. Argentina has spent millions on the importation of pedigreed stock, and to this is due the present high quality of its meat. Argentina commenced its shipments of frozen and chilled meats to Europe as early as 1877. Within the next few years the industry developed by leaps and bounds, largely owing to the investment of foreign (particularly British) capital. Within the last few years (since 1907) the United States has become a real factor in the meat business of Argentina, and as will be shown later, American investments in this field have resulted in substantial profits. Formerly the entire meat-producing industry centered in the Province of Buenos Aires, within reasonable distance of the River Plate. During recent years, however, attention has been drawn to Patagonia, and plants have been erected at Rio Gallegos, San Julien, and Puerto Deseado, Territory of Santa Cruz, and a syndicate has been formed to establish freezing and canning works in the Argentine Territory of Tierra del Fuego.

Ten meat-freezing establishments are in operation at the present time in the Province of Buenos Aires. During 1916 these 10 establishments slaughtered 1,925,281 head of cattle, 2,334,937 sheep, and 64,996 pigs, representing a cost price to the meat establishments of \$361,012,165 m/n. The 10 establishments represent an invested capital of \$116,374,774 o/s, and employed a total of 939 machines, of which 585 are worked by electricity, 158 by hydraulics, and 196 by steam, the combined horsepower being 28,922. In 1916 the employees in these plants numbered 15,492.

Practically all the British companies engaged in the meat-freezing industry, as well as the two important local concerns, are described in the Appendix. It may be of interest to indicate the profits of the energetic American concerns that have entered the field. The following table shows the paid-up capital that these companies have invested in Argentina, and also their profits from operation for the calendar year 1916:

Companies.	Paid-up capital (in Argentina).	Profits, 1916.
	\$o/s.	\$o/s.
Armour & Co.	3,000,000	^a 672,463
La Blanca (Morris-Armour).....	1,500,000	^b 1,520,901
Swift & Co.	7,500,000	2,758,940
Argentine Central (Wilson).....	300,000	915,035
Total.....	12,300,000	5,867,339

^a Year ended June 30, 1916.^b After allowing \$100,000 depreciation.

The Armour & Co. La Plata plant was inaugurated July 4, 1916, the cost, it is stated, having been \$3,500,000 o/s. The plant is located at Rio Santiago, Gran Dock, La Plata, and covers 20 acres. Its official name is Frigorífico Armour de la Plata.

The La Blanca Co. plant formerly belonged to Swift & Co., but in 1912 was acquired by the Armour and Morris companies. It is interesting to compare the 1916 profits (\$1,520,901 o/s, as above) with those for 1914, when they totaled \$276,704 o/s and returned a dividend of 10 per cent.

Swift & Co.'s La Plata Cold Storage Co., which in 1916 showed a profit of \$2,758,940 o/s (as above), was registered October, 1910. Net profits for 1914 were \$1,518,575 o/s. There has been, therefore, a substantial increase during the years of war.

The Sociedad Anónima Frigorífico Argentino Central, owned and operated by Wilson & Co., reported, as stated above, a profit for the calendar year 1916 of \$915,035 o/s, which, added to the balance of \$1,121,974 o/s carried forward from 1915, made a total of \$2,037,009 o/s, of which \$1,990,169 o/s was carried forward after dividend payments. The paid-up capital consists of \$240,000 7 per cent preferred and \$60,000 common.

Although the British meat-freezing companies have enjoyed large earnings, their divided profits since the war have not been exceptionally large, owing to the excess-profits tax. Quotations of a few of these shares follow:

Securities.	Amount.	Par value.	High price since 1911.	Price January, 1918.
British & Argentine Meat ordinary.....	£1,033,000	£1	23s.	22s.
Argentine Estates of Bovril preference.....	400,000	1	£1 $\frac{1}{8}$	£ $\frac{1}{2}$
Smithfield & Argentine Meat ordinary.....	325,000	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Liebig's Extract of Meat ordinary.....	600,000	5	24	23 $\frac{1}{2}$

The capitalization of the British & Argentine Meat Co., including debentures, is as follows: Ordinary, £1,033,000; 6 per cent cumulative and participating preference, £449,500; 5 per cent first debenture stock, £73,523; 6 per cent redeemable debenture stock, £572,865; total capitalization, £2,098,888. The dividend payment for 1915-16 was 12 $\frac{1}{2}$ per cent. The property is located at Campana, Province of Buenos Aires.

The Argentine Estates of Bovril is capitalized as follows: Ordinary, £241,014; 6 per cent cumulative and participating preference, £400,000; 4 $\frac{1}{2}$ per cent debentures and debenture stock, £427,900; 5 $\frac{1}{2}$ per cent debenture stock, £200,000; total capitalization, £1,268,914. Reg-

ular dividends of 6 per cent were paid on the preference shares to and including 1913-14. In each of the years 1915 and 1916 3 per cent was paid, and in 1917 4 per cent was paid. No dividends are being paid on the ordinary shares.

The ordinary shares of the Smithfield & Argentine Meat Co. (Ltd.) represent its entire capitalization. The dividend payment on this stock for 1916 was 15 per cent. The plant of this company is located at Zarate, in the northern part of the Province of Buenos Aires.

The capitalization of the Liebig's Extract of Meat Co. consists of £600,000 ordinary shares, £1,000,000 5 per cent preference shares, and £400,000 other obligations—a total of £2,000,000. In addition to its properties in Argentina this company owns lands and factories in Uruguay, Rhodesia, and Southwest Africa. The 1916 dividend on the ordinary shares was 25 per cent.

The Compañía Sansinena de Carnes Congeladas (Ltda.) is a very important locally owned meat-freezing company. It is headed by Carlos A. Tornquist and numbers among its directors Mr. Samuel Hale Pearson. The company has outstanding \$3,000,000 o/s ordinary shares, \$1,500,000 o/s 6 per cent preference shares, and £140,000 5 per cent debentures. The ordinary shares received 25 per cent in dividends in 1915 and in 1916, as compared with an average of 10 per cent per annum before the war. The shares are listed on the Buenos Aires Stock Exchange and sell at about \$140 o/s per share. The debentures are quoted on the London Stock Exchange. The freezing establishments are located at Avellaneda (a suburb of Buenos Aires) and at Bahia Blanca. They are known as "La Negra" and "Cuatreros."

Exports of the leading meat-freezing companies for the six months ended June 30, 1917, were as follows (slightly less than for the similar period during 1916):

Companies.	Frozen sheep and lambs.	Quarters frozen beef.	Quarters chilled beef.
Cfa. Sansinena de Carnes Congeladas.....	125,543	102,755	24,336
Las Palmas Produce Co. (British & Argentine Meat Co.).....	208,663	715,584	63,255
La Blanca (Morris-Armour).....	112,514	282,222	50,003
Swift & Co. (La Plata).....	116,393	366,200	120,526
Argentina Central (Wilson & Co.).....	40,890	131,395	22,506
Smithfield & Argentina.....	102,741	118,200	23,723
Armour de la Plata.....	164,713	341,326	47,504
Anglo-South American Meat Co.....	54,597	78,484	.....

The New Patagonia Meat & Cold Storage Co. (controlled by Swift & Co., capital £100,000), the Compañía Frigorífica de Patagonia, and the Sociedad Exploración de Tierra del Fuego did not directly export any meat during the period mentioned, presumably on account of the scarcity of ship tonnage.

Further facts concerning the River Plate meat industry will be found in the chapter on Uruguay, as well as in the Appendix. It need scarcely be said that the industry is enjoying unprecedented prosperity—a condition that is likely to outlast the European war for a considerable period of time. Every variety of animal product is in demand at the present time, and, despite the strikes and labor troubles with which the companies have had to contend at times, the returns will continue to be large.

MANUFACTURING AND COMMERCIAL PURSUITS.

Argentina as a nation is engaged primarily in pastoral and agricultural rather than commercial pursuits. Notwithstanding that fact, manufacturing has developed to a moderate extent and has attracted a fair amount of capital, some of which has come from European sources. In the following table, transmitted by Commercial Attaché Robert S. Barrett, is a statement of the industries of the country as shown by the census of 1913, with the number of establishments, capital invested, total production, raw material consumed, horsepower used, and number of persons employed. The values in Argentine paper currency have been converted into United States currency at the rate of 42.5 cents.

Kind of industry.	Number of establishments.	Capital invested.	Total production.	Raw material consumed.	Horsepower used.	Number of persons employed.
Meat packing houses.....	13	\$39,521,561	\$114,004,927	\$98,109,228	24,287	14,687
Flour mills.....	401	36,878,953	63,282,112	52,038,119	26,531	4,909
Sugar refineries.....	44	51,055,362	59,754,304	34,438,136	57,511	14,685
Preparation of wine.....	4,317	77,658,543	36,248,745	17,449,659	14,651	16,362
Bakeries.....	3,242	13,634,840	34,709,770	19,236,188	6,514	27,105
Foundries and metal works.....	1,177	25,389,184	24,987,634	12,851,834	14,161	16,109
Cigarette factories.....	55	12,552,383	22,471,474	6,553,601	1,191	4,295
Dairies, cheese factories, etc.....	8,161	42,833,791	22,439,534	12,565,114	3,317	28,589
Tailors.....	3,083	14,365,803	21,554,202	14,750,637	34	21,380
Leather shoes.....	231	9,126,084	20,884,830	11,800,976	2,388	12,869
Sawmills.....	305	8,940,018	19,220,005	14,059,505	13,514	7,378
Extracts of tannin and preparation of firewood.....	493	33,212,346	17,778,903	.....	12,874	19,616
Jute and cotton sacks.....	24	8,970,475	16,200,466	13,739,672	1,248	1,808
Lithographers and printers.....	938	12,338,093	15,409,435	5,380,739	2,985	11,491
Breweries.....	29	13,702,876	15,163,839	3,366,630	8,680	2,599
Carpentry, painting, and horse-shoeing.....	4,681	9,970,046	15,150,120	6,257,618	3,970	18,454
Liquors.....	326	8,984,383	13,775,247	7,621,173	1,518	3,035
Tanneries.....	109	8,396,155	13,655,719	8,933,491	5,416	3,474
Woodworking.....	736	4,843,097	12,503,539	6,674,605	6,906	5,903
Cotton and woolen mills.....	81	9,155,267	10,722,594	5,993,741	6,887	8,384
Furniture, trunks, and tapestry.....	1,058	9,242,590	9,771,501	3,798,159	2,206	8,101
Leather goods.....	986	5,349,305	9,746,658	5,968,603	326	5,497
Brick kilns.....	953	7,545,538	9,383,312	2,126,196	2,090	10,485
Preparation of herva matter.....	31	3,137,775	9,328,448	5,327,953	1,128	1,051
Soap factories.....	294	4,111,091	9,123,774	6,340,394	964	2,092
Clothing, etc.....	448	5,698,993	8,772,495	4,420,091	657	4,986
Chocolate and candy.....	299	4,672,106	8,761,916	6,108,327	2,337	3,854
Wagons and carriages.....	1,270	6,437,754	8,519,085	3,698,430	3,882	8,291
Macaroni and pastes.....	332	4,601,288	8,261,764	5,792,369	4,216	3,580
Ice and aerated waters.....	742	7,973,585	7,280,659	2,772,847	7,965	3,864
Rope and cloth shoes.....	241	3,714,781	7,133,657	3,892,221	1,097	4,764
Match factories.....	16	975,163	5,951,700	1,508,819	610	3,094
Crackers and cakes.....	207	2,800,278	4,451,572	2,369,431	588	2,062
Jewelry, watches, etc.....	769	4,193,454	4,098,250	1,922,813	43	2,231
Hats.....	92	2,671,231	3,662,194	1,825,152	1,298	2,382
Paper and cardboard mills.....	11	4,922,945	3,616,611	1,914,971	10,860	1,901
Alcohol.....	187	3,935,447	3,364,134	128,775	1,456	1,133
Dressmakers.....	574	2,474,434	3,300,508	1,110,719	15	3,754
Tinsmiths, etc.....	974	1,930,730	2,878,153	1,053,603	133	3,071
Preparing and refining oil.....	22	1,759,411	2,750,706	1,987,128	969	468
Fishing.....	4	1,957,295	2,416,961	10,625	17	278
Coffee roasters, etc.....	54	1,637,225	2,300,725	1,542,618	191	517
Cigars and tobacco.....	179	1,579,330	2,162,705	1,111,775	95	2,826
Confectionery.....	185	1,493,698	2,024,445	1,126,378	113	1,856
Glass factories.....	16	2,479,875	1,807,950	57,838	269	2,136
Gas fitters, etc.....	353	2,215,845	1,803,173	702,638	25	2,321
Cleaners and dyers.....	124	1,478,283	1,455,873	201,358	1,031	1,641
Artistic iron work.....	35	987,308	1,434,744	622,541	242	827
Petroleum refineries.....	1	3,187,500	1,062,500	637,500	265	220
Washing wool.....	10	673,731	1,038,545	748,255	885	255
Ore smelting.....	29	8,741,770	744,987	4,250	797	793
Preparation of salted hides.....	8	68,425	209,950	169,788	55	45
Construction companies.....	197	10,587,395	.....	.....	565	7,664
Paving companies.....	14	3,853,914	5,397,755	3,056,876	140	1,932
Light and power companies.....	305	127,875,724	.....	.....	391,959	9,916
Grain elevators.....	19	8,641,962	.....	.....	6,137	1,666
Other.....	6,971	47,173,084	62,487,327	33,614,817	18,479	48,993
Total.....	48,779	759,756,475	791,260,627	461,881,333	678,757	410,201

The census of 1913 was the first complete survey of Argentine industries that has ever been made. In 1895 a partial census was taken, which showed that the number of establishments at that time was 22,114.

Since the statistics for the 1913 census were obtained there has been a marked increase in the number of manufacturing establishments in the country. Many articles that were formerly imported from abroad and that can not be obtained from foreign sources at present are now made locally, and the high prices for foreign-made goods in the countries where they are produced, together with the exorbitant freight rates, have made the manufacture of these articles in Argentina very profitable.

Concerns in general commercial lines in Argentina, as of the year 1916, numbered as follows:

Localities.	Number of concerns.	Annual business.	Capitalization.	Number of employees.
Buenos Aires.....	20,690	\$ m/n 2,232,506,291	\$ m/n 750,320,546	118,360
Provinces of Cordoba, Mendoza, Santa Fe, and San Juan.....	21,654	1,094,081,592	447,437,758	58,660
Total.....	42,344	3,326,587,883	1,197,758,304	177,020

In addition to the above there were 71 telephone companies, capitalized at \$34,750,423 m/n and employing 4,494 persons; 143 banks, capitalized at \$1,255,533,077 m/n and employing 10,834 persons; and 85 insurance companies, capitalized at \$74,056,270 m/n and employing 1,549 persons.

The brewing industry in Argentina dates from 1868. In 1917 there were 25 breweries, with share and debenture capital of \$32,489,800 m/n and \$5,246,418 m/n, respectively. The capital invested in buildings, machinery, and raw material amounted to \$64,248,020 m/n. The output of the breweries for 1915-16 was 77,085,933 liters (20,363,831 gallons), as compared with 116,321,488 liters (30,728,698 gallons) in 1913-14. The capacity of the establishments is 177,790,000 liters (46,966,865 gallons) annually. Gross sales for 1915-16 were \$26,299,556 m/n, as compared with approximately \$27,000,000 m/n in 1914-15 and approximately \$38,000,000 m/n in 1913-14. Taxes paid amounted to \$4,036,426 m/n. Bieckert's Brewery is about the only one whose shares are known abroad. This company's shares have declined somewhat in price, as is shown by the following table:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary shares.....	£375,000	138	72
Preference shares (5 per cent).....	311,000	89	67
4 per cent first debenture stock.....	92,000	96	70
5 per cent irredeemable debentures.....	100,000	97	77

In addition to the above capitalization there is outstanding a small issue of 6 per cent debentures. The dividend rate on the ordinary shares for 1917 was 5 per cent (1913, 9 per cent).

The Distilería, Bodegas y Cervecería Germania (also engaged in the manufacture and sale of liquors and wines) is capitalized at \$3,000,000 o/s ordinary and \$1,500,000 o/s 7 per cent preference shares. Dividends on the ordinary shares in recent years have been as follows: 1911 and 1912, 16 per cent; 1913, 16 per cent; 1914, 14 per cent; 1915, 11 per cent; and 1916, 12 per cent. The preference shares sell (September, 1917) at par to 102 per cent and the ordinary at 150 per cent. In 1914 the ordinary shares were quoted at 170 per cent and in 1913 at 187 per cent. Most of the securities of the company are locally held.

The Cervecería Palermo, a brewery whose shares are held in Argentina, is capitalized at \$1,000,000 m/n ordinary and \$500,000 o/s preference. No dividends were paid on the ordinary shares during 1916. Formerly the rate averaged from 6 to 9 per cent.

Dividends of 3 per cent are paid on the ordinary shares of the Cervecería Segundo. Formerly the rate was 9 to 10 per cent.

A few of the various industrial companies, wholly or partly financed abroad, are the Argentine Refinery, the Argentine Tobacco Co., the Argentine Navigation Co., the Argentine Iron & Steel Co., and the Catalinas Warehouses & Mole Co. Among the commercial companies are Harrods and the Gath & Chavez South American Stores—two leading department stores—the City of Buenos Aires Central Produce Market, the Argentine Central Leather Co., etc. A brief description of most of these companies will be found in the Appendix.

Shares of industries and commercial companies held locally in Argentina and actively quoted are not numerous. The \$50 o/s shares of the Central Fruit Market (capital \$3,000,000 o/s) were quoted in September, 1917, at \$85 o/s (1916 dividend 12 per cent). Introdutora de Buenos Aires (importers) shares were quoted at the same time at 118 (10 per cent is paid), the capitalization being \$1,000,000 o/s. Argentina de Papel (paper) shares are quoted (September, 1917) at \$48 (\$50 par) as compared with \$130 high in 1913 and \$35 in 1915. Twelve per cent was paid on these shares in 1916. The Compañía General de Fósforos (match factory) is capitalized at \$5,100,000 m/n; 25 per cent per annum is paid on the shares, which were quoted in September, 1917, at 320 per cent. These shares in 1913 reached a price of 450 per cent. Puerto San Nicolas shares (\$7,425,000 m/n) were quoted in September, 1917, at \$20 m/n (par \$45 m/n), as compared with the high price of \$63.50 m/n in 1913. The dividend rate on these shares for 1916 was 2.2 per cent. This company operates the port and docks at San Nicolas on the Central Argentine Railway. A still larger port company is the Muelles y Depósitos del Puerto de la Plata, owning a wharf and warehouses at La Plata and capitalized at \$6,400,000 o/s. The latest dividend on these shares was 1.6 per cent, and the September, 1917, price was \$18 o/s per \$25 o/s share.

In addition to the few manufacturing, commercial, and miscellaneous concerns mentioned above, there are a number with capitalizations ranging from \$1,000,000 to \$10,000,000 and upward. The subject is too exhaustive to be dealt with fully. Generally speaking, the various manufacturing enterprises are on a sound and paying basis, despite high costs of fuel and power. It is hardly necessary to repeat the statement that Argentina is, and will continue to be for many years, an agricultural and pastoral country.

LIBRARY

NOV 4 1943

BOLIVIA.

INTRODUCTION.

The area of Bolivia is estimated at from 473,560 to 704,195 square miles—equal, if the latter figure is correct, to more than 14 times the size of New York State or $2\frac{2}{3}$ times the size of Texas. Its population is stated to be about 2,500,000. The Republic is one of the richest mineral countries in the world and is destined in the not distant future to increase considerably its output of tin, silver, copper, and other valuable products. Improved railway facilities and the activity and enterprise of a thoroughly progressive Government are placing the resources of this vast yet thinly settled country within reach of foreign markets. Although most of the country's development has taken place within its great central plateau, where practically all of its mines are located, the greatest future opportunities—once means of communication are established—exist, it is said, on the eastern slope of the Andes and among the plains in the eastern and southern parts of the Republic. The area of possible cultivation in this section covers many thousands of square miles, and nearly every product of the Torrid and Temperate Zones may be successfully grown. In the forests of the extreme eastern lowlands may be found mahogany, ebony, cedar, rosewood, satinwood, rubber, cork, etc. Thousands of wild cattle thrive on the long grasses of the southeastern plains; wild coffee, for which there is a ready domestic market, is found, as are vanilla and other tropical products.

Bolivia's foreign trade for the years 1912 to 1915 is here shown:

Years.	Imports.	Exports.	Total trade.
1912.....	\$19,258,996	\$35,057,841	\$54,316,837
1913.....	21,357,505	36,551,390	57,908,895
1914.....	15,506,876	25,662,447	41,169,323
1915.....	9,009,826	38,084,144	47,093,970

In the year 1902 imports amounted to approximately \$5,600,000 and exports to approximately \$11,100,000.

The chief cities of Bolivia are La Paz, the highest capital city in the world, lying in a circular valley about 11,900 feet above the sea (population, 85,000); Cochabamba, which on account of its location is expected to grow rapidly in size and importance (population, 27,000); Potosi, a mining city (population, 25,000); Sucre, the nominal capital (population, 24,000); Oruro, an important mining and trading center (population, 22,000); and Santa Cruz, the most important center of eastern Bolivia (population, 20,000).

Bolivia has upward of 5,600 miles of navigable rivers, all (except the Desaguadero, 185 miles) flowing in the direction of the Atlantic Ocean by way of the Amazon or the Paraguay—the latter an affluent of the River Plate. Lake Titicaca, the great inland body of water, forming a section of the boundary between Bolivia and Peru, covers

an area of 5,187 square miles and is navigable for steamers of considerable size. At the present time navigation is confined to the Peruvian Corporation's fleet of small steamers (650 to 1,000 tons), a few small sailing vessels, and a number of native balsas or reed boats.

There are few industries of importance on this lake. On the shores of the lake and along the slopes of the near-by Sierras are some of the finest grazing lands in South America. The country, with its excellent water supply, is better adapted for sheep raising than Australia. Land values are low, and labor is cheap and plentiful. The quality of the sheep found in this district is poor, owing to the present general lack of knowledge concerning breeding methods. Excellent opportunities exist for the ranching of sheep on a large scale, provided good sheep are imported for breeding purposes. The Indians, who form a very large percentage of the population of the lake district, devote themselves mainly to agriculture and fishing. Their methods are similar to those in use thousands of years ago. The produce raised by these Indians finds a ready market in La Paz and other places on the Bolivian plateau.

Among the various Departments and Territories of Bolivia La Paz is the most important. It contains approximately one-fifth of the nation's population. Three of Bolivia's most important railways enter the Department, affording means of communication with Peru and Chile and with various parts of the Republic. Oruro is probably next in importance to La Paz, containing as it does considerable mineral wealth, although little agricultural land is available. Oruro, the capital of the Department, is a railroad center of some importance. Potosi, which was long the treasure house of Bolivia but which some years ago declined in importance, is evidencing returning prosperity since the completion of the railway to Potosi, its capital city. The Department of Chuquisaca, in which is located Sucre, the nominal capital of the Republic, contains a number of mines and some manufacturing industries. The Department will increase in importance when railway communication is established with Sucre. Cochabamba is believed by many to be the Department holding the greatest promise for the future. Splendid fruit and agricultural lands are found there, as well as minerals of various kinds. Cochabamba, its capital, is the main center for the purchase of supplies for the Beni River district and other sections of eastern Bolivia. Several rivers water the Department.

In eastern and central Bolivia—the lower country—Santa Cruz is the most important among the Departments and Territories. Its area exceeds 140,000 square miles, and its population is about 200,000. Sugar, cotton, coffee, rice, maize, tobacco, and similar products are being cultivated in increasing quantities. Mahogany and other hardwoods, dyewoods, and other forest products, including rubber, are found. In this Department there are large petroleum deposits of a rich quality, which will certainly be profitably exploited when railway communications are established with the mining country to the westward or with Argentina. Salt, coal, gold, tin, copper, iron, and other minerals exist in this region. It is an extremely rich country, awaiting the day when better means of communication will place its resources before the outside world. Railways into the district are projected, but will probably not be built at this time. The Acre Territory and the Beni Department are thinly settled, containing

mostly wild Indians. Puerto Acre, the capital of the Acre Territory, is in communication with the Amazon, via steamer and the Madeira-Mamore Railway (see Brazil, p. 155). Rubber is the principal resource of that Territory, although the forests contain vast undeveloped timber wealth, unavailable now because of the cost of transportation. The climate during the rainy season is unhealthful. The Beni Department contains large quantities of rubber in its forests. On the great stretches of open plains are large herds of wild cattle. Tropical plants and fruits, as well as maize, tobacco, and rice, thrive in this district.

GOVERNMENT LOANS AND FINANCES.

Bolivia's financial record has been an excellent one. The Republic has carried on its development work slowly and carefully and deserves high credit for the manner in which it has taken care of its foreign obligations. Its external debt is far from excessive and mostly represents expenditures for improvements that have done much to open the country for settlement and development.

As of June 30, 1917, the debt of the Republic amounted to 63,813,895 bolivianos (equivalent to \$24,842,749 United States currency), divided thus: External debt, 40,642,151 bolivianos (\$15,821,989 United States currency); internal debt, 23,171,744 bolivianos (\$9,020,760). On the date mentioned the external debts were as follows:

Items.	Amount.	
	Bolivianos.	United States currency.
Morgan loan of 1909; 6 per cent; original issue \$2,432,500; balance amortized.....	4,935,151	\$1,921,255
French loan of 1910; issued by the Crédit Mobilier of Paris; secured by export duty on minerals and rubber and, in event of deficit, on general revenues; tax-free in Bolivia; interest rate 5 per cent; sinking fund $1\frac{1}{2}$ per cent; original issue \$7,213,750.....	17,218,000	6,702,967
French loan of 1913, for the construction of the La Quiaca-Tupiza Railway; original issue \$4,865,000; interest 5 per cent, and sinking fund.....	11,675,500	4,662,451
Warrants to bankers, 1910 loan.....	262,500	102,191
Chandler & Co.; interest and amortization payable by Department of La Paz..	6,250,000	2,433,125

The outstanding external debt on June 30, 1917, amounted to 4,301,555 bolivianos (\$1,674,594) more than on June 30, 1916. The internal debt during the same period showed an increase from 16,870,760 bolivianos (\$6,567,785) to 23,171,744 bolivianos (\$9,020,760).

The 5 per cent Crédit Mobilier Loan, floated in Paris, was offered for subscription in November, 1910, at a price of 485 francs per 504-franc bond (96.2 per cent). The bonds were readily absorbed by banks and investors, and during the years 1911 and 1912 sold regularly above par. Recently the bonds, owing largely to war conditions, sold on the Paris Bourse at 405 francs. The bonds are repayable in or before November, 1940, by means of the sinking fund. The Morgan Loan was largely repurchased by the Government several years ago, but bonds, other than those amortized, have not been canceled.

During the year ended June 30, 1917, Bolivia paid up the National City Bank loan, which on June 30, 1916, had been outstanding to the amount of 1,274,167 bolivianos (\$496,033).

A loan was recently contracted with the American banking firm of Chandler & Co. to provide funds to construct the Yungas Railway, extending from La Paz into the Province of Yungas, Department of La Paz. This loan was for \$2,433,125, and the rate is believed to be 6 per cent.

Among the Republic's internal obligations, the so-called Bonds Militar are quoted at 85. They carry 10 per cent interest.

A loan for £96,500 was created by the Government in October, 1916, and was subscribed for proportionately by the various Bolivian banks. The Government repaid this loan in January, 1917.

The service of loans, 1915-16, required 2,957,763 bolivianos.

As stated, Bolivia has made a very creditable financial record. The revenues of the Government were first affected seriously by the collapse of the rubber industry, due to the drop in price and to plantation-rubber competition. This was followed almost immediately by the war, which for the time being caused a crash in the price of tin and paralyzed the foreign trade of the country. The year 1914 was also characterized by a crop failure, and the Government was virtually compelled to suspend duties on various necessary imports. Recovery was slow in the extreme, and even to-day imports and import duties are below normal, although the country is enjoying a comparative boom in its mineral industry. The Republic emerged from the storm successfully and is now practically reestablished on a sound financial basis. The end of the war will cause a vast increase in imports, as merchants' stocks throughout the entire Republic are very low.

MUNICIPAL LOANS.

None of the Bolivian municipalities have any external bonds outstanding. Some of the cities have borrowed sums for municipal improvements either from banks or from other local interests. None of these loans are large. Bonds of the city of La Paz, which are occasionally dealt in locally and which are entitled to interest at the rate of 10 per cent per annum, sell at 60. Interest is said to be paid somewhat irregularly. La Paz is seeking arrangements whereby better sewerage facilities may be obtained and a filtration system provided for the purification of the water used in the city. The revenues of the two systems are offered as security. It is said that well-known American financial interests are investigating the proposition.

BANKS.

The banks of Bolivia as of June 30, 1916, had a total capitalization of \$16,365,000. Deposits on that date amounted to \$10,949,965. Gold reserves were £1,016,986. Paper currency amounted to \$9,691,197. Reserves of the banks totaled \$2,394,304.

The leading banks of Bolivia are the Bank of the Bolivian Nation (Banco de la Nación Boliviana), the National Bank of Bolivia (Banco Nacional de Bolivia), the Francisco Argandoña Bank (Banco Francisco Argandoña), the Mercantile Bank (Banco Mercantil), the German Transatlantic Bank (Banco Aleman Transatlántico), and the banking house of Gutierrez Guerra (Casa Bancaria Gutierrez).

rez Guerra). There is also a National Mortgage Bank (Banco Hipotecario Nacional), which was incorporated in La Paz in 1890. In Sucre there is a similar institution—the Banco Hipotecario Garantizador de Valores.

The Bank of the Bolivian Nation was founded in 1911, largely for the purpose of standardizing the then widely fluctuating foreign-exchange market. It absorbed the Banco Industrial and another institution. The Government used £1,000,000 of the proceeds of the French loan of 1910 to establish this bank. The capitalization was fixed at £1,114,000, of which the Government acquired £1,000,000 shares at par. The remaining shares were offered for subscription and were acquired largely by French capitalists, although some of the shares are held in La Paz. Profits for 1916 amounted to approximately \$883,025, equal to nearly 13 per cent on the stock. Deposits at the leading branches were divided in the following proportions: Cochabamba, 32.31 per cent; Sucre, 22.71 per cent; La Paz, 19.77 per cent; Potosi, 19.05 per cent; Tarija, 6.16 per cent. Branches also exist in Oruro, Santa Cruz, and El Beni. Six of these branches are operated with profit. Dividends for the year amounted to 12s., equal to 6 per cent. Eugenio Carpentier, of La Paz, is the director general. Shares of the bank are quoted in La Paz at 105.

The National Bank of Bolivia was established in the year 1870. Its authorized capital is £1,000,000, or 12,500,000 bolivianos; 8,000,000 bolivianos of the capital is paid in. There is a fund for reserve of 1,600,000 bolivianos and other funds for dividends, etc., totaling 792,105 bolivianos. The head office of this institution is at Sucre, and there are branches at La Paz, Oruro, Cochabamba, Potosi, Tarija, Tupiza, and Uyuni. The bank's shares are quoted at 128.

The Francisco Argandoña Bank is capitalized at 4,000,000 bolivianos. Its head office is at Sucre, and there are branches at La Paz, Cochabamba, Oruro, and Potosi. The shares of the bank were quoted at 65 in April, 1917.

The Mercantile Bank is a private organization controlled by Señor Simon T. Patiño. Its head office is at Oruro, with branches at La Paz, Uyuni, Cochabamba, Tupiza, Sucre, Potosi, Santa Cruz, and Tarija. The capitalization of the bank is £2,000,000. As the shares are privately owned there is no quotation for them.

The German Transatlantic Bank, a German organization that in past years was a power in South America, has an establishment at La Paz. There is a branch at Oruro and agencies in other cities. The bank's Bolivian operations are said to have resulted very profitably. Shares of this bank are not quoted in Bolivia.

Shares of the National Mortgage Bank are quoted at 320. The capitalization of the bank is 100,000 bolivianos. The Sucre mortgage bank is also capitalized at 100,000 bolivianos. This institution maintains a branch at Cochabamba. Its president is J. A. Fernandez. The Mercantile Bank maintains a mortgage department (sección hipotecario), which is capitalized at 800,000 bolivianos. There is also a somewhat similar organization known as the Crédito Hipotecario de Bolivia. This is capitalized at 560,000 bolivianos.

Bolivian merchants seem to be of the almost universal opinion that an American branch bank would be successful in the Republic.

RAILWAY DEVELOPMENT.

On July 4, 1917, following the establishment of train service to Cochabamba, Bolivia had approximately 840 miles of railway. Final completion of lines under active construction will, within the next two or three years, increase the mileage to about 1,100; and if the elaborate program of railway construction as projected is carried out, the country will in time possess more than 3,000 miles of line.

There are, as is generally known, three railway outlets for the commerce of Bolivia: (1) the Antofagasta & Bolivia Railway, to Antofagasta, Chile; (2) the Arica-La Paz Railway, to Arica, Chile; (3) the Guaqui-La Paz Railway, which connects with the steamers on Lake Titicaca running to Puno, Peru, where connections are afforded with the Peruvian Southern Railway to Mollendo, Peru. Of these three railways the most important is the Antofagasta & Bolivia Railway, the longest and oldest line in the Republic.

ANTOFAGASTA & BOLIVIA RAILWAY.

The Antofagasta & Bolivia Railway was built originally to provide an outlet for the nitrate properties of the Compañía Salitres de Antofagasta. No outlet existing for the mineral products of the Huanchaca Mine, located at Huanchaca, near Uyuni, Bolivia, the owners of the mine purchased the railway. This was in 1884. The line was completed as far as Uyuni in the year 1888. In 1889 the property was disposed of to the present company for approximately \$10,000,000. The road was continued to Oruro in 1892, and from that time began an expansion of earnings and profits. Today the railway is one of the best managed and most profitable in South America. It has taken over, under lease, the Bolivia Railway, hereinafter described, and now presents a through route between La Paz, Potosi, Oruro, and other important Bolivian cities and the Pacific ports of Antofagasta and Mejillones, Chile. Gross earnings from the railway (Chilean and Bolivian sections) for the calendar year 1915 amounted to £1,220,581 (\$5,939,950), as compared with £1,430,927 (\$6,963,600) in 1914 and £1,811,775 (\$8,817,000) in 1913. In 1916 gross earnings increased to £1,852,655 (\$9,015,946) and in 1917 to £2,239,384 (\$10,897,962).

The Bolivian section of the Antofagasta & Bolivia Railway, with which the present discussion deals, is 302 miles in length, not including the Bolivia Railway section. Earnings of this division for 1915 amounted to £184,556 (\$898,140), as compared with £281,359 (\$1,369,235) in 1914. Net earnings for 1915 were £75,556 (\$367,695), as compared with £132,264 (\$643,665) in 1914. Passengers carried on the Bolivian section during 1915 numbered 23,466 first-class (31,444 in 1914) and 89,705 second-class (133,307 in 1914). There was a corresponding decrease in passenger receipts from £37,503 (\$182,500) to £22,304 (\$108,540). In 1916 and 1917 gross earnings of the Bolivian section totaled £249,209 (\$1,212,776) and £318,486 (\$1,549,912), respectively. Net earnings for the two years were £79,213 (\$385,490) and £129,654 (\$630,961). Both freight and passenger business showed a consistent increase.

During 1915, 33,132 tons of tin were carried, as compared with 38,022 tons in 1914; in 1916 there was a further increase in the

amount transported. A total of 32,528 tons of silver in bulk was handled in 1915, against 34,715 tons in 1914. The haul of this mineral is comparatively short—Oruro to the smelters. The traffic in antimony is also quite important, 15,207 tons being carried in 1915, as compared with only 181 tons in 1914. This traffic, which was also large in 1916, may be said to be temporary, as all of this mineral is shipped for use in the European war. Metals from the Huanchaca mines, largely zinc blends, were carried to the amount of 8,369 tons, as compared with 13,836 tons in 1914. Up traffic in coal, flour, and general merchandise in 1915 was also considerably less than in 1914. It is expected that the opening of the Cochabamba line (Bolivia Railway) in July, 1917, will bring additional traffic to the main line. The meter (3.28-foot) gauge line between Oruro and Uyuni was completed in February, 1916, and it is expected that the remainder of the 2.5-foot gauge will be broadened in the not distant future. At the present time semiweekly train service is maintained between La Paz and Antofagasta, the trip taking 40 hours on the down run and 43 hours on the up run. Trains for Bolivia leave Antofagasta Tuesdays and Saturdays at 8 p. m. The down trains leave La Paz Tuesdays and Fridays at 2 p. m. In addition, train service is maintained over the Bolivia Railway section between La Paz and Oruro daily except Wednesday, while two or three mixed trains a week run between other Bolivian points. The Antofagasta & Bolivia Railway had in service December 31, 1915 (not including Bolivia Railway), 163 locomotives, 112 passenger cars, 3,247 freight cars, and 146 lighters, launches, etc.

The Bolivia Railway, whose lines have been leased by the Antofagasta & Bolivia Railway, was incorporated in the United States in 1907 and holds a perpetual concession from the Government of Bolivia for the construction of lines of railway in the Republic—in all about 773 miles. This mileage includes the following:

(1) *Oruro-Viachi line (continuing the Antofagasta & Bolivia Railway to La Paz).*—This line cost to December 31, 1913, \$6,237,345. Its length is 126 miles, with no grades of importance. Together with other sections of the road, it has been leased to the Antofagasta & Bolivia Railway for a period of 99 years, from January 1, 1909.

(2) *Potosi division.*—This section, which extends from Rio Mulato (on the Antofagasta & Bolivia Railway) to Potosi, 108 miles, climbs to an altitude of 15,814 feet, the second highest altitude reached by any railway in the world. Potosi is the center of a rich mining section, and a fair amount of traffic originates along the line. The cost of this extension was approximately \$8,052,575. Weekly passenger service is maintained over this division, the trip taking eight hours. The maximum grade along this section is approximately 3 per cent.

(3) *Oruro-Cochabamba line.*—This line, construction on which has been under way for several years, was expected to open for through traffic July 4, 1917. The total length will be about 132 miles, and the cost has exceeded \$10,000,000. The railway's present right of way has been subjected to a number of washouts, and maintenance is fairly costly. The city of Cochabamba is, however, of considerable importance and seems destined to grow rapidly in the future. This division crosses the sierra at an altitude of about 14,000 feet and then rapidly descends to Cochabamba, which is located at an altitude of about 8,400 feet. The maximum grade is 3 per cent.

(4) *Uyuni-to-Atoche Palca extension.*—This extension was originally projected to Tupiza and has been surveyed to that point. The object of the line was to afford connection with the La Quiaca-Tupiza Railway, under construction by the Vezin Syndicate, of Paris. About \$2,600,000 has been expended on this section thus far. The Antofagasta line has evinced no intention of carrying out further construction, and efforts are being made to procure funds to carry on the work under Government supervision. The cost of the 60 miles re-

maining uncompleted has been estimated at \$5,000,000. Under present conditions it would probably exceed \$6,500,000. The Government has offered as collateral for a loan to carry on this construction its £1,000,000 shares in the Bank of the Bolivian Nation.

An extension of the Oruro-Viachi line into La Paz is being built by the Antofagasta & Bolivia Railway. This extension is practically completed, although the softness of the soil along the down grade from Alto de La Paz to the city of La Paz has rendered construction difficult.

Practically all of the equipment in use on the Bolivia Railway is of American manufacture; that in use on the Antofagasta & Bolivia Railway has been mostly made in British shops.

ARICA-LA PAZ RAILWAY.

The Arica-La Paz Railway extends from the Chilean port of Arica to La Paz, Bolivia, and is the shortest route between the latter city and the coast. The main route from La Paz to Arica is 281 miles, comparing with 534 miles La Paz to Mollendo (Peruvian Corporation route) and 718 miles to Antofagasta (Antofagasta & Bolivia Railway). The highest altitude (13,986 feet) is reached near the Bolivian boundary. A total of 28 miles of rack rail is in use, the maximum gradient being 6 per cent. There are no tunnels on the Bolivian section although several are found in the Chilean section. The run from the Chilean-Bolivian boundary to La Paz is 150 miles, including 6 miles of the Guaqui-La Paz Railway from Alto de La Paz to the city.

The Arica-La Paz Railway has had to contend with innumerable difficulties during the past two years. Only two locomotives are available for the rack section of the railway and these are not sufficiently powerful to propel more than a very limited number of cars. Equipment is otherwise totally inadequate for the amount of business that the railway is called on to handle, and port facilities at Arica are not of the best, enlarged port works being urgently needed. The Government of Chile allows 40 days for the shipment of goods through Arica to Bolivia. So congested are conditions on the railway that this period is frequently exceeded before goods can be delivered across the border; this has caused a considerable amount of trouble, as on numerous occasions claims have been entered by the Chilean Government for duties on these shipments.

An order has been entered in the United States for an additional rack locomotive, which will slightly improve conditions. Efforts are likewise being made to have the Guaqui-La Paz Railway run cars over the line between Corocoro and Viachi to transport copper mined at the former place. At the present time practically no means are available for handling this copper, owing to lack of equipment on the Arica-La Paz Railway. It has been suggested that the rack rail section of the railway be electrified, and this change is under advisement by the Chilean Government. The property is a good one, and if adequately equipped would probably prove highly profitable. The Bolivian section taps the richest copper belt in the Republic. An extension of the Corocoro branch might readily be carried through to Oruro, probably the best railway-traffic center in the country, as there would be no construction difficulties of any kind. At the present time semiweekly passenger service is maintained be-

tween Arica and La Paz. Up trains leave Arica Mondays and Fridays at 4 p. m., making the run in 22 hours. The down trains leave La Paz Sundays and Thursdays at 4.15 p. m., making the down trip in 18½ hours. The single first-class fare is 66.40 Chilean pesos (approximately \$14 United States gold at present rate of exchange). Sleeping accommodations cost 18.50 pesos (\$3.90).

GUAQUI-LA PAZ RAILWAY.

The Guaqui-La Paz Railway (Peruvian Corporation), which is 60 miles long and which is the only railway at present operating directly into the city of La Paz, reaches its highest altitude at Alto de La Paz, 13,396 feet. The line extends from Guaqui, where connections are afforded with the steamers crossing Lake Titicaca, to La Paz. The Lake Titicaca steamers connect at Puno, Peru, with the Peruvian Southern Railway to Mollendo and Cuzco. Passengers on the up run must spend one night at Arequipa. On Fridays a train runs from Arequipa to Puno, connecting with the express steamer for Guaqui. Forty-seven hours, including the stop-over at Arequipa, are required for the journey. Saturday's train from Mollendo connects with the local daylight steamer on Lake Titicaca. On Sundays an express service is operated between La Paz and Mollendo, which enables the down journey to be made in 29 hours.

During the year ended June 30, 1916, gross earnings of the Guaqui-La Paz Railway totaled £42,470 (\$206,680), as compared with £38,867 (\$189,145) in 1914-15. Net receipts amounted to £10,152 (\$49,400). These figures compare with £87,921 (\$427,865) gross in 1912-13 and £38,351 (\$186,635) net. Gross earnings in 1910-11 totaled £96,332 (\$468,800). There were 109,307 passengers carried during 1915-16. The railway has a privilege zone of 12 miles on either side between the lake and Viachi. The gauge is 1 meter (3.28 feet), and equipment is of American make. The maximum gradient on the main steam line is 1.8 per cent and on the electric section 6.2 per cent. The railway property is carried on the books of its owners, the Peruvian Corporation, at £396,320 (\$1,928,700).

OTHER RAILWAYS IN OPERATION OR UNDER CONSTRUCTION.

There are no other railways of importance at present in operation in Bolivia. A 24-mile line extends from Uyuni, on the Antofagasta & Bolivia Railway, to the Huanchaca silver mines; it is owned by the mining company. There is a 2-mile tunnel on this railway that was extremely difficult to construct. An electric line known as the Cochabamba-Vinto-Cliza tramway, controlled in Cochabamba, has been completed for upward of 45 miles, and additional mileage is under construction; its estimated total length is 57 miles. The Machacamarca & Uncia Railway, owned by Sr. Simon Patiño, is under construction and partly in operation between Machacamarca (near Oruro, on the Antofagasta & Bolivia Railway) and Uncia, where extremely rich tin mines exist. The railway may be extended to Sucre at some not distant date. Uncia is 52 miles from Machacamarca.

Important railways under active construction are:

(1) *La Quiaca-Tupiza Railway*.—This line, funds for which were largely raised by means of a loan floated in Paris during 1913, and for which a contract was let to the Vezin Syndicate of France, is to form a portion of the through

route between Buenos Aires and La Paz. When this line is completed from La Quiaca, on the Argentine frontier, to Tupiza, there will still remain 60 miles of somewhat difficult line to construct. The cost of linking this gap, as previously stated, was estimated some time ago at \$5,000,000.

(2) *La Paz-Yungas line*.—This railway, the funds for which were largely raised by a loan of \$2,400,000 furnished by Chandler & Co., of the United States, is under active construction between the city of La Paz and the Yungas province of the Department of La Paz. The line, which will be operated by electricity, will have to surmount some comparatively heavy grades, first at Alto de La Paz and later in reaching the top of the Sierra. It is claimed that a good traffic will be developed, especially in timber, a commodity much needed in La Paz and in other places on the Bolivian plateau. Vegetables are also grown in the Yungas territory, and there is a certain amount of mineral wealth. It is anticipated that some day the railway will be extended to Rurrenabaque, located near the head of navigation of the Beni River. The population of the Yungas district is mostly composed of Indians, some of whom are living in a comparatively wild state. The railway, which will be of meter gauge, is being constructed by the Bolivian Government and is under the supervision of local engineers. Up to the close of 1917 the amount expended on the La Paz-Yungas Railway totaled 3,078,831 bolivianos. In 1917 the expenditures totaled 1,467,899 bolivianos. The rails have been carried over the cordillera and early in 1918 were approaching Unduavi.

(3) *Potosi-Sucre Railway*.—Construction work under governmental supervision was commenced on this line in November, 1916. The railway, which will connect with the Bolivia Railway at Potosi, will, if completed, be the first line to reach the nominal capital of the Republic. It is expected that the line will be completed as far as Betanzo in about 18 months. In order to carry on the further construction of the line to Sucre a loan of \$4,000,000 to \$5,000,000 will probably be negotiated, the rate suggested being 6 per cent interest with 2 per cent annual amortization. Various taxes will, it is stated, be assigned for the service of this loan, including those on pepper, hides, and cattle. In addition, the Departments of Chuquisaca and Potosi have each agreed to provide 50,000 bolivianos (\$19,465) for the loan service. In the event of the completion of the line to Sucre it is hoped that it will be possible to continue the road northeastward to Santa Cruz (population 20,000), center of the rich Santa Cruz Department.

PROJECTS UNDER CONSIDERATION.

Negotiations have been entered into at various times for the further extension of the Potosi-Sucre Railway to Puerto Suarez, on the Paraguay River. The concession at latest accounts was controlled by an Italian syndicate, the Fomento de Oriente Boliviano. The length of the line, which has been partly surveyed, will be between 425 and 450 miles, and its cost would probably slightly exceed \$10,000,000. The Bolivian Government has agreed to guarantee a certain percentage on a portion of the construction cost. Puerto Suarez, which is the outlet for fair amounts of rubber and hides, is located opposite Corumba, Brazil, to which port the Brazilian Government has under construction a line of railway. In the event of the possible construction of these two lines and of the completion of the Bolivian Government lines, Santa Cruz to Sucre and Sucre to Potosi, a through transcontinental route, somewhat lengthy, would be open for such traffic as might develop. The rail distance to Rio de Janeiro would be approximately 1,900 miles. A number of years will probably elapse before these various undertakings will be fully carried out.

Another project is for the construction of a line from Yacunda, on the Argentine frontier—between which point and the town of Embarcacion the Argentine Government is constructing a railway—northward to Santa Cruz, tapping the oil country as well as other important, although little developed, sections of the country. This line would approximate 250 miles in length and would encounter

some difficult grades. Concessions have been granted by the Government for the line's construction, and much of the route has been surveyed. Years will probably pass before it will be constructed. A line has been surveyed from La Quiaca, on the Argentine frontier (terminus of its Government line), to Tarija, Bolivia, which is a town of some importance and the center of an agricultural area of great fertility. The length of this line would probably not exceed 125 miles.

The Bolivian section of the Madeira-Mamore Railway, constructed in part as a means of routing traffic around the falls and rapids in the Madeira and Mamore Rivers, will probably not be built at the present time, owing to the receivership of the railway company. Its terminus in Bolivia was to have been at Riberalta, on the Río Madre de Dios.

PUBLIC UTILITIES.

Public-utility development in Bolivia has been confined mainly to the larger cities. Electric lighting has been installed in perhaps a dozen of the more important places, and water systems have likewise been established in various localities. In addition to the interurban electric railway terminating at Cochabamba, there is one other tramway line in the Republic—namely, that operated by the Bolivian & General Enterprise Co. (Ltd.) at La Paz.

The Bolivian & General Enterprise Co. controls and operates the tramways, electric-lighting system, and telephone service at La Paz. The company, which is owned almost wholly by the French munition-making firm of Creusot & Schneider, was originally incorporated for the purpose of exploiting and developing rubber in far eastern Bolivia. Following the collapse of the rubber boom this concern obtained the public-utility franchises in La Paz. Power is obtained without difficulty from the river that flows down from the Alto. The tramway line, single track with sidings for passing purposes, runs from the railway station on the outskirts of the city to the main plaza, thence down the heavy grade to the Parado or residential section. The line is approximately 3 miles in length, and 8 cars, all of American manufacture, are in regular use. The local first-class fare is high, 0.20 boliviano (8 cents), and the second-class rate is 0.10 boliviano (4 cents). The cars do not seem to be heavily patronized. The cost for electric service, especially for cooking, is said to be excessive, and as a result electricity is used for practically no other purposes than lighting. The telephone service is good and fairly reasonable. No statement of earnings and profits is made public, but it is understood that dividends are not paid on the present capitalization.

The previously mentioned interurban line terminating at Cochabamba is operated by the Electric Light & Power Co. (Sociedad de Luz y Fuerza Eléctrica), of Cochabamba. This light railway, which also radiates through the city, is of 2½-foot gauge, and operates to the towns of Arami, Vinto, Puneta, Tarata, and Cliza. The company also furnishes light and power to Cochabamba and these other towns, and operates a flour mill at Cochabamba. The company has outstanding £300,000 6 per cent preferred stock, guaranteed for 25 years by the Government of Bolivia, and £100,000 common stock.

At Sucre, the nominal capital, the light and power franchise is held by the *Empresa de Luz y Fuerza Eléctrica*. This company is owned, practically in its entirety, by an individual. At Oruro a local company, the *Empresa de Luz y Fuerza Eléctrica*, has the lighting and power privileges. The lighting facilities are used by the municipality and to a limited extent by the general public. Oruro was the second city in Bolivia to install electricity. A mule tramway has long existed in the city, but it is seldom, if ever, used to-day. The telephone system is controlled by an individual firm, *Pena & Co.* The city of Tarija is lighted by gas and electricity and obtains a supply of good water from Erquis, 6 miles away. Potosi is electric lighted and receives its water supply from 22 of 32 original reservoirs built by the Spaniards in the sixteenth century on the hills above the city.

Other than the above, there has been little development along these lines. Opportunities are said to exist for a holding company to take over and develop the existing properties in Bolivia and, as time goes on, to acquire additional franchises.

THE RUBBER INDUSTRY.

Several years ago it was thought that rubber was destined to be the principal product of Bolivia. The districts adjacent to the Beni and Madre de Dios Rivers were rightly heralded as being Eldorados for the growth and exploitation of this product. Large sums were invested in the field and anticipations of large profits were generally indulged in. The industry was hindered from the start by the scarcity of labor and the somewhat unhealthful condition of the country, as well as by the general lack of transportation facilities. The completion of the Brazilian section of the Madeira-Mamore Railway aided the producers, and much was anticipated from the Bolivian section of the railway, which, it was contemplated, would be built to Riberalta, from which point steamers were to have been run on the navigable rivers of eastern Bolivia. The railway was not completed, however, owing to the receivership of the company, and this fact, combined with the crash in the price of rubber, placed the industry generally in an unfavorable situation. Conditions were made even worse following the declaration of war in Europe. An improvement is being noticed at the present time, and better things may be expected. Some years will probably elapse before prosperity is fully restored.

MINING ENTERPRISES.

Foremost among the industries of Bolivia is mining. The silver hills at Potosi and Oruro furnished vast portions of the hoards of wealth that the galleons of Spain took across the seas. Gold and silver were the only minerals sought in those days, except perhaps a little copper. Fabulous tales have been told of the amounts of ore extracted from the mountain at Potosi during the days of Spanish occupancy. Sufficient forced labor was obtainable to assure the taking out of this ore almost without cost, and vast fortunes were accumulated by many of the conquistadores.

After the independence of Bolivia had been achieved the mining industry gradually fell into a state of decay, from which it did not

fully emerge until a few years ago. The land was strewn with thousands of abandoned mines and workings, and such development as was carried on was handled in a haphazard way. The construction of railways into the Republic and the endeavors of a thoroughly enlightened Government gradually put the industry on a firm foundation, and there is every prospect of continued progress.

Silver has been displaced by tin as the most important mineral product. A total of 36,482 tons of this valuable mineral was exported in 1915, mostly through the port of Antofagasta; 35,360 tons went to Great Britain and 1,100 tons to the United States. The amount exported in 1915 compares with 35,834 tons exported in 1912 and 35,566 tons in 1909. The Republic stands second in the world in the production of tin, and there are prospects of much greater development following the introduction of somewhat more modern methods and the construction of additional railways and roads. A number of the tin properties are paying well, and there is certainly room for the establishment of other companies, moderately capitalized and managed on a conservative scale. High costs of fuel and transportation are the drawbacks in this as well as other mineral industries in Bolivia. Labor is cheap, good, and fairly plentiful. The better grade of this tin seems to exist in altitudes above 14,500 feet, where working conditions are not so pleasant as on the pampa. Sr. Simon Patiño is the owner of many of the most important of these mines. Details concerning several of the tin mines of Bolivia, their capitalization, etc., will be found in the Appendix (see p. 500). Probably the most important of Sr. Patiño's tin mines are the Uncia properties at Uncia, to which place a railway is under construction, and the La Salvadora mine in the Department of Potosi. The Aramayo Francke properties, hereinafter described, are also of considerable importance. Some American capital has recently been invested in the tin fields, the remainder of the mines being largely held by Bolivian, Chilean, French, British, and Swiss interests. Shares of several of the mining companies are listed on the Santiago (Chile) Stock Exchange.

The tin production of Bolivia during the years 1910 to 1915 has been as follows:

Years.	Metric tons. ¹	Value.	Years.	Metric tons. ¹	Value.
1910.	38,548	\$14,399,415	1913.	44,595	\$26,375,245
1911.	37,073	20,482,335	1914.	37,260	16,529,120
1912.	38,614	23,438,985	1915.	39,312	19,268,860

¹ Metric ton=2,205 pounds.

Copper, largely found in the Corocoro district, was produced in the year 1915 to the amount of 23,820 tons, the largest production in the history of the Republic. The exportation of this commodity in 1916 was considerably handicapped, owing to the lack of equipment in service on the Arica-La Paz Railway, which was utterly unable to handle this traffic. The Corocoro district has been known for many years, and has been regularly worked since 1873. In 1909 a large number of the properties were consolidated as the Corocoro United Copper Mines (Ltd.), organized in Great Britain. The rest of the properties are held mostly by the Compañía Corocoro de



Photograph by P. S. Penfield.

FIG. 8.—ANTOFAGASTA & BOLIVIA RAILWAY, AT FRONTIER BETWEEN BOLIVIA AND CHILE.

In the background is Mount Ollague, an active volcano, 19,237 feet high.



FIG. 9.—SILVER MINES AT ORURO, BOLIVIA.

These mines have been producers since the early days of the Spanish Conquest.

Bolivia, organized in 1873. A short time ago the Andes Copper Co., a subsidiary of the Anaconda Copper Co. (capital, \$2,000,000), investigated certain of the developed properties at Corocoro. The offering price, said to be £1,200,000, was considered too high, and the American concern abandoned the field for the time being to investigate certain properties located near Arequipa, Peru. Copper formations in the Corocoro district are said to resemble greatly those of the northern Michigan copper mines, such as Calumet & Hecla, Copper Range, and other well-known properties. Most of the copper exported from Bolivia in 1915 went to the United States. The total value of the copper produced in 1915 was \$3,820,821, as compared with \$1,728,441 in 1914, \$1,278,870 in 1913, \$1,318,745 in 1912, \$555,230 in 1911, \$695,312 in 1910, and approximately \$500,000 in 1901. The principal fuel used at the mines is taquia, which sells ordinarily at about \$4 per ton, but which, owing to the abnormal demand, has risen to about \$7. The daily wages paid to native employees is approximately 1.80 bolivianos to the men and 0.70 bolivianos to the women.

The tungsten deposits of Bolivia have attracted considerable attention of late. About 793 tons of this valuable mineral were exported in 1915, as compared with 276 tons in 1914. The United States is the best customer for this commodity. The ore is found in widely scattered areas, although most of the development has taken place in the Santa Cruz district, lying to the northwest of Cochabamba. There is likewise some development in the neighborhood of Uyuni. The stated production for 1915 was valued at \$293,462.

Antimony was exported to the amount of 17,923 tons in 1915 and in very large amounts during 1916. Only 186 tons were exported during 1914. The value of the 1915 production, given as 13,085 metric tons (less than the amount exported), was \$4,216,059, as compared with only \$11,913 in 1914. The business in this commodity may be said to be only temporary, the ruling high prices being due to the abnormal demand caused by the European war. In normal times exportation is hindered by the high transportation rates.

Silver, as has been stated previously, has been declining in production in the Republic of Bolivia. The recent rise in the price of the commodity has brought a slight, temporary increase in the value of the production. During the days before the formation of the Republic, Bolivia was the richest silver country in the world. The famous Cerro Rico de Potosi produced in bygone days more than \$2,000,000,000 in wealth—the greatest production of any similar area in the entire world. It is further claimed that the mineral riches of this silver mountain are far from exhausted. From 1900 to 1910 the silver production of Bolivia dropped steadily, from upward of \$5,000,000 per annum to approximately \$2,100,000, and from 1910 to 1915 the production declined about one-half, the total for 1915 reaching \$1,092,647.

Gold mining has not assumed importance in Bolivia. The Department of La Paz at the present time produces most of the gold mined in Bolivia, although it is known to exist in the Departments of Potosi, Chuquisaca, Cochabamba, and in the Velasco province of the Department of Santa Cruz. In all, 398 pounds were exported during 1915 and 393 pounds during 1914. The value of the 1914 production was \$118,695.

Lead is produced in rather small quantities, 2,208 tons having been exported during 1915 via La Quiaca and the railways of Argentina. Shipments for 1914 were 1,555 tons, valued at \$60,489. High transportation costs prevent the development of this branch of mining.

Zinc is produced in small amounts, and recently an investigation was carried on by the leading zinc producer of the United States as to the advisability of entering the Bolivian field. Results were said to have been unsatisfactory. Only 104 tons of zinc were exported in 1915; as compared with 3,755 tons in 1914. The production for 1914 was valued at approximately \$55,000. In 1911 the production was valued at approximately \$170,000.

Bismuth is also produced in Bolivia, the nation leading the world in the amount annually taken from the earth. The lack of demand for this commodity greatly restricts the sale. During 1915 663 tons were exported, and 568 tons, valued at \$1,071,125, produced.

Practically the only other minerals produced were molybdenum (of which slightly more than 6 tons was exported) and wolfram.

The total value of the mineral production of Bolivia during several recent years has been as follows: 1910, \$18,236,542; 1911, \$23,948,862; 1912, \$27,689,685; 1913, \$30,964,855; 1914, \$20,579,613; 1915, \$29,762,966.

The Bolivian Government has recently granted a concession for the erection of a cement plant at the port of Carabuco on the shores of Lake Titicaca. Geological surveys of the near-by hills indicate the practicability of the undertaking. A ready market for the product will be found in Bolivia and in the uplands of Peru. The Peruvian Corporation's local steamers make the port of Carabuco regularly and connect with the Peruvian Southern Railway at Puno, Peru, and with the Guaqui-La Paz Railway at Guaqui, Bolivia.

Coal is found in fair quantities near Carabuco, the strata covering the hills over an area of more than 4 miles. Some years ago an American company secured a concession to work these mines and invested considerable capital in the enterprise. Several hundred tons were mined, and the coal was experimented with by the Peruvian Corporation in its steamers—with disastrous results, however, it being found that the coal was intermixed with large quantities of sulphur and other impurities. As coal sells at \$60 and upward per ton in Bolivia, the operation of this mine would probably prove profitable, if means could be found to make the product fit for use. A further difficulty is the soft nature of the soil, which would make necessary extensive timbering. The cost of this timber would prove a severe drawback, as the price in Bolivia is virtually prohibitive. However, stone adits might be used as a substitute.

PETROLEUM RESOURCES.

Numerous traces of oil have been found in Bolivia, and hopes are entertained that from these petroleum discoveries will come the solution of the fuel problems of the Republic. Frederick G. Clapp, S. G., in his paper, "Petroleum Resources of South America," gives an extensive review of the oil situation in Bolivia. This is here reproduced in part:

DISTRIBUTION OF BOLIVIA FIELDS.

The petroliferous fields of Bolivia, situated in the Andean district, lie along the southeastern frontier of the country, and indications are quite continuous in a belt extending northwest and southeast through a distance of 150 miles (241 kilometers) as far as the Argentine boundary at Yacuiva. The zone is a diagonal one, traversing the eastern Provinces of Santa Cruz, Sucre, and Tarija, between 63° and 64° west longitude and 19° and 22° south latitude. According to M. A. Rakusin in the "Troudi" of the Grosny branch of the Russian Technical Society, published in 1913, there are at least three fields, viz: (1) Piema, (2) Kuarazuti, and (3) Lomas de Ipaguaciu. The productive formations are supposed to extend from near Santa Cruz in the center of Bolivia, southward through Saucos to Piquirenda, Plata, and Guarazuti, in the Province of Tarija and into northern Argentina.

According to the Pan American Bulletin, "careful geologic investigations of the eastern slope of the Bolivian Andes confirm the claim that a petroleum belt exists along the entire range of these mountains from Ayacuiba to the Madre de Dios River."

The Pan American Bulletin mentions a narrow belt in eastern Bolivia, on the foothills of the Cordillera Real, "extending in the direction of Santa Cruz, to the village of Monte Agudo, a distance of some 300 miles." Indications are also reported in the Beni district. In view of the cumulative evidence, it seems likely that Bolivia will some day be a great producer of petroleum.

The existence of oil has long been known from seepages, and recently these have been found to occur continuously along a belt extending northwest-southeast, over 150 miles, down to the Argentine boundary at Yacuiva. Thus the petroliferous zone extends diagonally across the Provinces of Santa Cruz, Sucre, and Tarija, between 63° and 64° west longitude and 19° and 22° south latitude, and thence far into Argentina.

A report made by Director General Barrett, of the Pan American Union, states that the Espeljos (Mirror) Spring, 36 miles from Santa Cruz, is a fair sample of the character and kind of surface indications in the region between the northern boundary of Argentina and the Madre de Dios River in northern Bolivia. This river is close to the southern boundary of western Brazil, and with the Beni, into which it runs, finally joins the Mamore River to form the Madeira.

GEOLOGICAL CONDITIONS.

The oil along the eastern base of the Andes in Bolivia comes, according to Ralph Arnold, chiefly from Lower Cretaceous dolomites. The formations are much folded and faulted. According to Rakusin, the three principal petroliferous areas in southern Bolivia belong to the so-called "Sistema de Salta," extending from northern Argentina into the center of Bolivia. The strata are of the chalk formation, and, according to him, "all the most important petroliferous areas of South America must belong to the chalk formation, with the single exception of the petroliferous deposit of Cacheuta Mendoza, which belongs to the Upper Trias."

According to the same writer, the oil seepages at Peima are found in two conglomerate horizons separated by clay slates, and similar conditions are said to exist in Kuarazuti. The deposits of Ipaguaciu seem to be different, however. "An anticlinal of average depth" exists in the Peima fields, and the Kuarazuti structure is reported as a continuation of the folds a few miles distant and identically the same. It is reported that the probable thickness of overlying strata in the southeastern Bolivian fields ranges from 160 to 660 feet (48.7 to 201 meters). If this be true, the cost of development may be correspondingly small. No wells have been sunk in this neighborhood, and investigations have gone no further because of the inaccessibility of the localities. According to Arnold, "springs and seepages of oil issue from Lower Cretaceous dolomites along the eastern base of the Andes." The Bulletin of the Pan American Union says that "extensive petroleum deposits of good quality have been discovered at Calacota, on the Arica & La Paz Railway." If true, this shows a continuation of the Titicaca fields of Peru.

QUALITY OF BOLIVIAN PETROLEUM.

Little is known of the quality of Bolivian petroleum, but some analyses show an extremely high percentage of lubricating substances. The oils so far recovered vary in composition from those of asphaltic base with specific gravity

of 0.975 (13.5° Bé.) and containing 4 per cent gasoline to an oil of 0.810 specific gravity (43° Bé.) containing 40 per cent gasoline. The heavier oil is confined in the lower sands. Along the eastern base of the Andes the petroleum is of high grade, from 35° to 47° Bé.

According to the Pan American Bulletin, in reference to the petroliferous belt from Ayacuiba to the Madre de Dios River, "the Espejos petroleum spring, 12 leagues from Santa Cruz, is a fair sample of the quality of petroleum encountered in the belt referred to. Oozings taken from the surface flow of this spring, according to the recent analyses made in London, contain 78.2 per cent of kerosene, 17.5 per cent of lubricating oil, and 4.3 per cent of coke. No shafts have been sunk in this neighborhood, but the indications would seem to argue that gushers may be found by boring to the proper depths. Up to the present time the Espejos spring remains unexploited."

Pools of relatively pure oil and also of "pitch" exist in eastern Bolivia, on the foothills of the Cordillera Real. These indications extend in the direction of Santa Cruz to the village of Monte Agudo, a distance of some 300 miles (482 kilometers). This oil-bearing belt appears to be comparatively narrow. Similar indications are reported in the Beni district, but they are less well known.

REMARKS ON GENERAL CONDITIONS.

No oil has yet been produced in Bolivia, and the transportation difficulties have been cited as an argument that oil is not likely to be produced in the near future. The only way of reaching the Santa Cruz region at present is by cart road across Bolivia or Argentina. Two railroads are projected to the fields, however, one to run west from the Paraguay River and a second north from the Argentine frontier, and these will tap the oil region.

MANUFACTURING.

As a manufacturing country Bolivia has not made much progress. A few concerns have located there and seem prosperous. There are breweries at La Paz and Sucre, as well as a National Match Factory that holds an exclusive concession from the Government. This concession expires in 1927. There are flour mills at Cochabamba and elsewhere, a shoe factory at Oruro, and a small number of other manufacturing concerns scattered throughout the larger cities of the Republic. There is no doubt that opportunities exist in the manufacturing field, but each individual line must be previously investigated.

FOREIGN CAPITAL INVESTED IN BOLIVIA.

Bolivia seems to have been a favorite field for French investors, who have readily absorbed the external bonds, financed public utilities, and otherwise placed money in the development of the country. Probably France has invested in Bolivia between \$20,000,000 and \$25,000,000. British investments were recently estimated at \$17,519,400; Chile has several millions at stake in the Bolivian mines; while the United States, Germany, and, in a small way, Switzerland have employed capital there. Germany has a large bank there, and numerous German merchants, previous to the war, handled a large part of the country's imports.

BRAZIL.

INTRODUCTION.

The Republic of Brazil is the largest both in area and population among the Latin American countries. Its extent is little realized outside the Republic's own boundaries, its area being equal to that of the United States (excluding Alaska), England, Ireland, Scotland, and Wales, the Netherlands, Belgium, Portugal, and Switzerland combined. The population of Brazil is estimated at more than 23,000,000. It is bounded on the north by the three Guianas, Venezuela, and Colombia; on the west by Colombia, Peru, Bolivia, and Paraguay; on the south by Uruguay and Argentina; and on the east and southeast by the Atlantic Ocean.

Brazil has within its vast area partly developed and undeveloped wealth of every description. It contains forest-covered valleys watered by the greatest chain of rivers in the world, the Amazon and its tributaries; vast stretches of table-land, healthful to live in and highly productive; magnificent mountain ranges, rich with minerals; and fine cities and harbors. With wealth such as the Republic contains, its future can not be otherwise than promising.

There are within the Republic not less than 27,000 miles of navigable rivers and more than 16,000 miles of railway, these highways of commerce affording access to the most exuberant regions of natural wealth, including the great areas producing cacao, rubber, sugar, coffee, fruits, and other agricultural products. The Amazon drains a wider area than the Mississippi, Missouri, Danube, and Nile taken together, and taps the world's greatest forest area. Within or bounding the Republic there are numerous other navigable and important streams. Geographers say that of the 55 largest rivers known to mankind, 33 are wholly or largely in Brazil.

The Republic may be said to be divided into zones, and it possesses a wide variety of climate. On and near the northern frontier is located the Guiana Plateau, a section abounding in forest wealth and known to contain immense areas of open country suitable for cattle raising. However, this territory is at present almost inaccessible and may only be spoken of as a land of to-morrow. In the not distant future a railway that will probably head inland through British Guiana will open this territory to the world; then the ax will swing and cattle will be raised and lumber and meat products will be shipped to the outside markets. This section of Brazil is destined, in fact, to become one of the great cattle ranges of the western world.

To the southward of the Guiana Plateau is the great Amazon Valley, containing the king of rivers with its great array of tributaries. To all appearances this country is merely a wilderness, yet in normal times hundreds of thousands of tons of products descend the river each year, being sent to Manaos or Para to be shipped to the outside world. This traffic represents the toil of a handful of men working

in a territory hardly explored. Only the surface of the district has been touched; in fact, were ten times as much of the products of the upper river basin sent out each year, not the slightest impression on the country's resources would be made, so fast do the tropical products grow. It is a territory of magnificent distances. Manaos, the important city of the central Amazon, is not less than 924 miles from Para, and there is no town of any real importance between the two places. From Manaos to Loreto, just over the Peruvian boundary, is 889 miles; to Santa Isabel, on the Rio Negro, the distance from Manaos is 423 miles; to Marary, on the River Jurua, it is 1,093 miles, and to Amajas, on the River Purus, it is 1,435 miles.

Southward from the Amazon basin rises slowly the great Central Plateau. In this semitropical region an abundance of sugar is raised, the nation standing sixth in the world as a producer of this commodity. This and the more southerly sections of the Republic contain sufficient hardwood to last the world for centuries, as well as building timber and other wood of every description; yet Brazil has for a long time imported a large amount of timber. Some of the trees measure from 30 to 35 feet in circumference and reach a considerable height. Here and there sawmills are being erected, but the industry is only in its infancy.

Central Brazil contains, among its numerous sources of wealth, minerals of almost every description, as well as agricultural areas. São Paulo, in the south-central section of the country, is the richest coffee-producing land in the world, two-thirds of the entire amount of coffee used annually by mankind being raised in this district. The States of Parana, Santa Catharina, and Rio Grande do Sul contain some of the richest and finest cattle pastures and farm lands in the Western Hemisphere. This section of the Republic will some day be populated by millions of inhabitants and will attract vast amounts of capital.

Brazil has many large cities, some of which are thoroughly up to date and magnificently laid out. Rio de Janeiro, the capital, is credited with 1,200,000 inhabitants, ranking second among the cities of Latin America and fifth in the Western Hemisphere. Rio is located on one of the most beautiful harbors in the world and presents to the eye a most charming picture—one long to be remembered. Around a very large portion of the city's water front a magnificent boulevard of asphalt and white marble and granite has been laid out. Palatial buildings abound, and there are numerous fine parks adorned with beautiful fountains and statuary and luxuriant with tropical and subtropical vegetation. One finds here museums, universities, a beautiful municipal theater, a fine system of tramways, etc. Though it was once none too free from tropical diseases, the city is to-day one of the cleanest and most sanitary in the world, the death rate being as low as 19 per 1,000.

Next to Rio in size and importance comes São Paulo, a city with a population of about 450,000, sometimes called "the Chicago of South America," whose prosperity bids fair at some future date to rival that of the central metropolis of the United States. It is a bright, breezy city, with a most delightful climate, situated on a table-land 2,700 feet above sea level and 49 miles distant from the port of Santos. It possesses wide streets, a palatial opera house (equal in beauty to any in the two Americas), theaters, public buildings, shops,

etc., a good tramway and electric lighting service, and a wide variety of modern conveniences.

Bahia, a city largely rebuilt and with perhaps 300,000 inhabitants; Pernambuco (population over 200,000), and Para, the port of outlet for the Amazon River, are next in size among Brazilian cities, and they are followed (although not in order of size and importance) by Santos, Manaos, Rio Grande do Sul, Porto Alegre, Parahyba, Nitheroy, and Ceara.

Brazil's foreign trade reached its zenith in the year 1912, when imports and exports totaled \$670,111,140. In 1913 there was a decrease to \$639,653,589, and in 1914 to \$387,285,717. The totals for 1915 and 1916 were \$401,407,850 and \$460,383,964, respectively.

PUBLIC DEBT OF FEDERAL GOVERNMENT.

The total public debt of the Republic of Brazil during the past four years has been as follows:

(a) *Sterling debt*.—Sterling funded debt, 1913, £103,773,000; 1914, £104,481,000; 1915, £108,629,000; 1917 (May 1), £112,904,000. Sterling floating debt, 1913, £2,037,000; 1914, £2,311,000; 1915, £4,044,000; 1917 (May 1), £1,456,000.

(b) *Paper money*.—The amount of paper money in circulation as of May, 1917, was 1,157,528,000 milreis, as compared with 601,488,000 milreis in 1913 (milreis equals about \$0.26 United States currency at present rate of exchange).

(c) *Internal funded debt*.—The internal debt of Brazil as of May, 1917, amounted to 864,436,000 milreis, as compared with 726,746,000 milreis in 1913.

(d) *Internal floating debt*.—The internal floating debt of Brazil as of May, 1917, amounted to 41,087,000 milreis.

PRINCIPAL EXTERNAL ISSUES.

The principal external loans of Brazil are the following:

(1) *4½ per cent bonds of 1883*.—Coupons due June and December; sinking fund, 1 per cent, cumulative; original price, 89; price January, 1918, 65; high since 1911, 103; par of bonds, £100, etc.; original issue, £4,599,600; outstanding, £2,713,100. The coupons due December, 1914, to June, 1917, inclusive, were paid in funding bonds (see a following paragraph).

(2) *4½ per cent bonds of 1888*.—Coupons due April and October (see note on p. 121); sinking fund, 1 per cent, cumulative (see note); original offering price, 97; high price since 1910, 103; price January, 1918, 64½; par, £100, etc.; original issue, £6,297,300; outstanding, £4,173,100.

(3) *4 per cent bonds of 1889*.—Coupons April and October (see note); sinking fund, one-half per cent, cumulative (see note); originally issued in 1889 to provide for the conversion and redemption of former issues of 5 per cent bonds; high since 1911, 91½; price January, 1918, 59; par, £100, etc.; original issue, £19,837,000; outstanding, £17,468,300.

(4) *5 per cent bonds of 1895*.—Coupons February and August, payable in London, Paris, Amsterdam, Brussels, and Hamburg (see note); sinking fund, 1 per cent, cumulative (see note); original

price, 85; high since 1911, 103½; price January, 1918, 72½; par, £100, etc.; original issue, £7,442,000; outstanding, £6,925,900.

(5) *5 per cent funding bonds*.—Coupons quarterly, January, April, July, and October; par, £20, £100, etc. This issue was brought out 1898 to 1900 to fund coupons on the then existing bonds. The cumulative sinking fund of one-half per cent per annum continued to operate and interest was paid regularly during the period July, 1914, to end of three-year funding period on various issues (see note). The bonds are secured on customs receipts of Rio de Janeiro. The high price for the issue since 1910 was 105½, and the price January, 1918, was 95. The original issue was £8,613,700, of which £8,338,940 remains outstanding.

(6) *Railway guaranty rescission bonds*.—Par, £20 to £1,000; interest January and July (see note); sinking fund, one-half per cent per annum and an additional sinking fund (payable under certain conditions) derived from certain funds of the railways; bonds issued 1901 to 1905 to acquire certain railways; high price since 1911, 89¼; price January, 1918, 57; original issue, £16,619,300; outstanding, £12,935,480.

(7) *5 per cent bonds of 1903*.—Par, £100, etc.; interest May and November, payable in London, Paris, Brussels, Hamburg, and Amsterdam (see note); sinking fund, 1½ per cent, cumulative (interest and sinking fund have been regularly met); original offering prices, £5,500,000 in 1903 at 90 and £3,000,000 in 1905 at 97; high price since 1911, 105; price January, 1918, 84; original issue, £8,500,000; outstanding, £7,698,100; secured by net revenue of the port of Rio de Janeiro.

(8) *5 per cent bonds of 1908*.—Par, £100, etc.; interest January and July, payable in London, Paris, and Amsterdam (see note); sinking fund was to have retired issue by 1918, but in accordance with the funding scheme of 1914 (see note), arrangements were made whereby the sinking fund operations would not recommence for 13 years, so that issue will not be extinguished until 1930; original offering price, 96; high since 1911, 103¼; price January, 1918, 72; original issue, £1,000,000; outstanding, £1,839,400.

(9) *4 per cent bonds of February, 1910*.—Par, £100, etc.; interest February and August (see note); sinking fund, ½ per cent, cumulative (see note); original offering price, 87½, or issued at 87½ per cent for conversion of Western of Minas Railway 5 per cent bonds, as well as for the 5 per cent Government bonds of 1907; balance of proceeds used for railway construction; high since 1911, 88½; price January, 1918, 58; original issue, £10,000,000; outstanding, £9,767,500.

(10) *4 per cent bonds of March, 1911*.—Par, £100, etc.; issued for the construction of the Rio de Janeiro port works; coupons payable March and September in London, Brussels, Antwerp, Paris, and Amsterdam (see note); sinking fund was to have retired issue between 1913 and 1927; final maturity date changed from 1927 to 1940, in accordance with funding scheme of 1914 (see note), sinking-fund payments having been suspended for 13 years; original price, 92; high since date of issue, 95½; price January, 1918, 64; original issue £4,500,000; outstanding £1,042,900.

(11) *4 per cent bonds of December, 1911*.—Par, £20 and £100; interest January and July, payable at Lloyd's Bank, London; issued

to provide funds for the construction of railways in the States of Ceara and Piahy; sinking fund was to have retired issue by 1972, but the suspension of payment dates for 13 years will delay maturity; original price, 83½; high since issue, 83½; price January, 1918, 58; original issue, £2,400,000; outstanding, £2,400,000.

(12) *5 per cent loan of 1913.*—Par, £20 to £1,000; interest April and October (see note), payable in London, Paris, Basel, Amsterdam, and Brussels; sinking fund, 1 per cent per annum, cumulative (see note); bonds issued for the construction or enlargement of the ports of Pernambuco, Corumba, and Paranagua, for railway construction, and for retirement of Treasury bills; original price, 97; high price since date of quoting on the London Stock Exchange, 93½; price January, 1918, 71; amount of bonds issued and outstanding, £11,000,000.

(13) *5 per cent funding bonds of 1914.*—Interest quarterly commencing February (regularly paid in cash); sinking fund, ½ per cent per annum, cumulative (commencing August 1, 1917); issued as per funding scheme of 1914 (see note) to meet interest on various issues as specified above for three years commencing August 1, 1914; secured by customs receipts of various ports; authorized issue, £15,000,000; issued, £9,962,229 (to May, 1917; amount presumably slightly increased); price January, 1918, 81.

[NOTE.—The funding scheme that went into effect August 1, 1914, and continued in effect until July 31, 1917, provided for the funding into 5 per cent bonds (as above) of the coupons on all bond issues with the exception of those heretofore specified, namely, 5 per cent funding bonds of 1898 and the 5 per cent secured (customs receipts) loan of 1903. Sinking-fund operations on all the loans, with the exception of the 5 per cent funding bonds of 1898, were also discontinued for the period of 13 years. In addition to the loans specified in earlier paragraphs, the Government's Lloyd Brasileiro (steamship) loans were also affected by the scheme; see following paragraphs.]

GOVERNMENT LLOYD BRASILEIRO LOANS.

5 per cent sterling loan.—Interest April and October (see note above); sinking fund was declared payable in 12 annual drawings which would have retired entire issue by December, 1916, but under funding scheme of 1914 (see note above) final maturity date has been delayed until 1927; original issue, £1,100,000; outstanding, £210,500. The issue is guaranteed as to interest and sinking fund by the Republic of Brazil. The original offering price of the issue abroad was 96. The price January, 1918, was about 80.

4 per cent sterling loan of 1910 (Lloyd Brasileiro).—Interest April and October (see note concerning funding scheme of 1914); redeemable at par by 12 annual drawings which were to have commenced in October, 1916, but have been delayed until 1927 in accordance with the funding scheme of 1914; original price, 90; high price since issue, 97; price January, 1918, 65; issue guaranteed as to principal and interest by the Republic of Brazil; amount originally issued and at present outstanding, £1,000,000.

STERLING FLOATING DEBT.

The sterling floating debt was in the form of treasury bills, which were accounted for as follows:

Issued at London.....	£3, 191, 800
Issued at Rio de Janeiro.....	1, 636, 552
Due Rio Grande & São Paulo Railway.....	199, 564
Total issued.....	5, 027, 916
Total paid off.....	3, 571, 546
Balance outstanding.....	1, 456, 370

It is interesting to note that the first external loan of the then Empire of Brazil was made in the year 1824, when, under date of August 13, £1,333,300 5 per cent bonds were sold at 75 per cent, the issue to be retired by sinking fund within 30 years. The following month saw the issue of another loan to Brazil, this being for the sum of £2,352,900, bearing interest at 5 per cent and to be retired in 30 years. The price obtained was 85. In 1829 another loan was contracted abroad, the principal being £769,200, and the interest rate, as before, 5 per cent. The issuing price of this 30-year loan was much lower than that of previous issues, being 52 per cent.

In the year 1839 (there had been an intermission of 10 years between the issuance of external loans) £411,200 5 per cent bonds, to mature in 30 years from 1846, were floated abroad at 76 per cent. In 1844 a 29-year loan totaling £732,600 realized 85 per cent. In 1852 the next loan was floated, the amount being £1,040,600, the final maturity date 1882, the interest rate $4\frac{1}{2}$ per cent, and the price $95\frac{1}{2}$. A 20-year $4\frac{1}{2}$ per cent loan was floated six years later, the price again being $95\frac{1}{2}$, and a 5 per cent loan was negotiated in 1859 at par; the total amounts represented by the two issues being £1,528,500 and £508,000, respectively.

During the period between 1859 and the date of the first issue now outstanding (1883) several important loans that have since been retired were floated, the interest rates being $4\frac{1}{2}$ and 5 per cent and the prices 74 (5 per cent loan of 1867) to $96\frac{1}{2}$ (5 per cent loan of 1875). The 5 per cent loan of 1867 was for the largest amount thus far floated, £6,963,600. The 1875 loan was for £5,301,200, and other loans were for amounts varying from £1,373,000 to £3,855,300.

In addition to the loans at present outstanding, loans that have since been retired were issued as follows: £6,431,000 5 per cent bonds of 1886; £3,710,000 5 per cent bonds of 1893 (issued at 80 per cent).

External bonds outstanding at the present time represent very extensive expenditures for public works on the part of the Government. The improved condition of the nation's finances and the announcement that all interest will be paid in cash hereafter has generally improved the prices and standing of the bonds on the markets abroad. All the issues are listed in London, and several in Paris and elsewhere. Those actively quoted in Paris include the 4 per cent bonds of 1899, 5 per cent funding bonds of 1898, 5 per cent of 1908-9, 4 per cent of 1910, etc.

INTERNAL DEBT.

As has previously been stated the internal funded debt of Brazil, as of May, 1917, amounted to 881,993,700 milreis. As of December

31, 1916, the total internal funded debt in circulation (864,436,400 milreis) had been issued for the following purposes:

	Milreis out- standing.
Currency bonds ("apolices geraes") 5 per cent and 4 per cent (mostly 5 per cent).....	515, 145, 600
Port works of Rio de Janeiro (issued 1903).....	17, 300 000
Bonds for purchases of railways.....	231, 367, 000
Bolivian indemnity, 5 per cent.....	1, 629, 000
Lloyd Brasileiro steamship.....	671, 000
Treasury obligations.....	65, 429, 800
Public works State of Rio de Janeiro.....	13, 841, 000
Miscellaneous.....	19, 053, 000
Total.....	864, 436, 400

These bonds are actively quoted in Rio de Janeiro. Interest on the principal issues is payable January and July. Some of the other issues bear interest at as high a rate as 6 per cent. The following table indicates the quotations on principal issues:

Issues.	Rate.	Outstanding.	Price April, 1917.
	<i>Per cent.</i>		<i>Milreis.</i>
"Apolices Geraes," 5 per cent (currency bonds).....	5	512,414,600 milreis.....	810
"Apolices Geraes," 4 per cent (currency bonds).....	5	119,600 milreis.....	780
National issue of 1903.....	5	17,300,000 milreis.....	798
Issue of 1909.....	5	20,000,000 milreis.....	795
Issue of 1910 (1).....	5	31,182,000 milreis.....	
Issue of 1910 (2).....	3	1,544,000 milreis.....	
Issue of 1911 (1).....	5	29,999,000 milreis.....	790
Issue of 1911 (2).....	5	4,997,000 milreis.....	780
Issue of 1912 (1).....	5	49,998,000 milreis.....	795
Issue of 1912 (2).....	5	17,742,000 milreis.....	800
Issue of 1913 (1).....	5	29,890,000 milreis.....	
Issue of 1913 (2).....	5	1,816,000 milreis.....	
Federal Railway bonds 1908 (500 francs).....	5	100,000,000 francs.....	70.)
Federal Railway bonds 1910 (500 francs).....	5	100,000,000 francs.....	
Federal Railway bonds 1911 (500 francs).....	4	60,400,000 francs.....	
Federal Railway bonds 1911 (£20).....	5	2,000,000 pounds sterling.....	
Port of Recife.....	5	40,000,000 francs.....	

NOTE.—The bonds of the above issues, with the exception of those expressed in foreign currency, have a par value of 1,000 milreis (1,000\$).

The internal funded debt of Brazil had its origin following a decree dated 1827. Between the years 1828 and 1882 "apolices" ("apolices" is a term for consols) were issued, bearing interest at 6 per cent per annum, to the amount of 339,675,100 milreis, of which 22,977,700 milreis were paid off. The rest were, in a later year, converted into 5 per cent bonds. In addition, three internal gold loans—30,000,000 milreis in 1868 at 6 per cent, 51,885,000 milreis in 1879 at 4½ per cent, and 109,694,000 milreis in 1889 at 4 per cent—were issued and subsequently paid off.

INTERNAL FLOATING DEBT.

The internal floating debt, as stated, amounted in May, 1917, to 41,087,000 milreis, this being in the form of treasury bills. It is said that sufficient resources are at hand to bring about the retirement of this entire issue, together with the £1,456,000 external floating debt heretofore mentioned. It will thus be seen that Brazil, through economies and by other approved methods, is taking effective

tive steps to clear off the nation's floating debt and prevent a recurrence of any financial crisis such as shook the country during the early months of the European war. The war, unfortunately for the country, followed close on a period of unusual depression, which had been due to overexpansion caused by the almost too rapid growth and development of the various States of the Republic and by the crash in rubber prices. The President in his message to Congress dated March 3, 1917, stated that all the treasury payments were up to date except those dependent upon a legislative credit and those that had not been requested by the creditors themselves. After dealing with all current expenses the national treasury had been able to accumulate gold reserves to an amount in excess of £3,000,000, making a total sum of more than £5,000,000 gold at the disposal of the Government to meet obligations.

The steps taken by the Government to reestablish normal conditions has had a very marked effect upon the currency of the country generally, and exchange rates have steadily risen.

STATE ISSUES.

The various States of Brazil, as distinct from the Federal Union, have the power to raise loans on their own account. A large number of the municipal loans, having been issued to carry out important public works, bear the guaranty as to principal and interest of the various State governments. Practically all of the guaranteed loans and a number of other loans have been floated in European markets and prior to the war were in favor with investors.

The following paragraphs describe briefly some of the important external State issues of Brazil.

STATE OF ALAGOAS.

The external debt of the State of Alagoas consists of an issue of 5 per cent bonds originally publicly offered to the amount of £500,000. Of this issue of £500,000, £220,000 was offered for subscription in Paris in 1906, and the rest was mostly offered in London in 1909 at 85 per cent. The highest price for this issue in London since the year 1911 was 95 and the price January, 1918, was about 70 per cent. The loan is specifically secured by income derived from customs duties and is generally guaranteed by the entire revenues of the State. The loan is being retired by an annual sinking fund, which either buys in the open market at below par or draws bonds at that figure. The entire issue is to be retired through this sinking fund by 1958. The income from export duties has varied annually between £52,460 and £78,646, interest and sinking-fund requirements amounting to £27,500 per annum. Approximately 10 per cent of the issue has been retired through the sinking fund.

The area of Alagoas is 22,583 square miles and the estimated population 1,000,000.

In addition to its external loan, the State has outstanding 400,000 milreis 5 per cent bonds in 1,000-milreis denominations, the interest being payable January and July.

STATE OF AMAZONAS.

In the year 1906 the State of Amazonas floated a loan for 84,000,000 francs at 5 per cent per annum, interest payable May and Novem-

ber. The bonds were sold in Paris, Antwerp, and Brussels, mostly at 91 and were secured by the revenues from export duties on rubber, by the lease of the Manaus lighting and tramways concession, and by a special lien on the "patente" tax. The sinking fund was one-half per cent, cumulative, per annum. A recent quotation for the bonds on the Paris Bourse was 260 francs per 500-franc bond.

Figures concerning the internal debt are not available. Prior to the war it was stated that the total internal debt amounted to 15,000,000 milreis and the floating debt to 18,975,794 milreis.

The estimated population of Amazonas is 460,000. Manaus (population 65,000) is its capital.

STATE OF BAHIA.

On several occasions the State of Bahia has been a borrower in the markets of Europe, particularly in France and Great Britain. In the year 1888, 20,000,000 francs of 5 per cent bonds were floated in Paris at 96 per cent. In 1905 a new loan was created to the amount of £1,613,800, under which bonds were either reserved to retire bonds under the loan of 1888 or were exchanged for them. The 1888 loan has since been reduced to approximately 9,000,000 francs.

In addition to the bonds reserved for or issued in exchange for the 5 per cent bonds of 1888, £500,000 was issued for the consolidation of the floating debt and other internal obligations of the State. The total amount of bonds issued is £1,062,360, of which £998,640 remains outstanding. The coupon due November, 1914, was not paid and arrangements were made whereby this coupon and subsequent coupons were to be funded. The high price of this issue since 1911 was 101 and the low price (1916) was 44. The price January, 1918, was about 70.

The sinking fund, which operates under normal conditions, is one-half per cent per annum. The service is secured by the export duty on tobacco, cacao, and coffee.

In 1910 an issue of 45,000,000 francs bonds was authorized, bonds to be issued in Paris and interest to be payable at the Banque de Paris et des Pays Bas. The bonds are quoted on the Paris Bourse. Under normal conditions the entire issue was to have been retired through sinking fund prior to 1966.

A 5 per cent gold loan to the amount of £1,000,000 was floated in London during 1913, having been offered for public subscription at 93. The proceeds of the issue were assigned to take care of maturing Treasury bills (£400,000), payment and consolidation of floating debt, etc. The sinking fund is $\frac{1}{2}$ per cent per annum, cumulative, and interest dates are January and July. The industrial, professional, and land-transfer taxes were assigned for the service of the issue. The parity of bonds is £20 to £500.

In January, 1915, it was announced that on account of the crisis resulting from the European war the State would be unable to meet interest requirements in cash, but that plans would be made whereby coupons for the period of three years (or, in other words, to and including January, 1917) would be funded. The funding bonds to be issued (see next paragraph) were to bear interest at 5 per cent per annum. The high price for this issue since original date of listing on the London Stock Exchange was 88, the low price was 30 per cent, and the January, 1918, price was about 60 per cent.

The 5 per cent funding bonds were quoted January, 1918, at about 72. The issue is a first charge on certain taxes and is to be redeemable commencing 1918 by a sinking fund of 2 per cent per annum, cumulative, to purchase bonds at or below par or to draw them at the latter figure. The amount outstanding in January, 1918, was £207,000.

The State has in circulation 17,556,000 milreis 5 per cent internal bonds, which are listed on the Stock Exchange at Rio de Janeiro. Interest dates are January and July.

STATE OF ESPIRITO SANTO.

Thrice within recent years the State of Espirito Santo has been a borrower in the French market, the dates being 1894, 1907, and 1908. The 1894 loan was for 17,500,000 francs; the 1907 loan amounted to 25,000,000 francs, to be paid off prior to 1950 by means of a $\frac{1}{2}$ per cent sinking fund (original offering price was 97 $\frac{1}{2}$, the bonds being publicly offered by two French banks); the 1908 loan was for 30,000,000 francs, to be paid off by 1949 by means of a $\frac{1}{2}$ per cent cumulative annual sinking fund (original offering price in Paris was 95). The bonds of the three issues bear interest at 5 per cent per annum and were issued in 500-franc denominations. Of the 30,000,000-franc issue, 29,490,893 francs remained outstanding May 1, 1917. These bonds are listed on the Rio de Janeiro Stock Exchange, as are the bonds of the issue of 1894.

The State of Espirito Santo also has outstanding an issue of 5,650,700 milreis 6 per cent bonds, interest payable January and July. The quotation for these bonds as of May 1, 1917, was 730 milreis per 1,000-milreis obligation. Of this issue, 1,687,400 milreis bonds were brought out in 1888 and the remainder in 1909 and 1910. The bonds are perpetual, having no maturity date.

STATE OF MARANHÃO.

The State of Maranhão has outstanding both external and internal bonds, the former issued in 1910 to bear interest at 5 per cent per annum and quoted in Paris. This loan was for 20,000,000 francs, bonds being issued in 500-franc denominations. The final due date is 1942. The 500-franc bonds were quoted at 255 francs on the Paris Bourse several months prior to the writing of this report. After the payment of the July, 1914, coupon the payment of further cash coupons was delayed owing to the war.

Before the outbreak of the war the internal debt of this State was estimated at 2,646,200 milreis, being mostly in the form of 5 per cent and 6 per cent "apolices" (consols).

STATE OF CEARA.

The State of Ceara has not been a large borrower abroad. Its only external loan is for 15,000,000 francs, bearing interest at 5 per cent per annum. The issue was floated in 1910 and will mature 1948, the interest being payable May and November and the parity of bonds being 500 francs. This issue has been admitted for quotation on the Stock Exchange at Rio de Janeiro. Details at hand would indicate that the State has no internal funded debt.

STATE OF MINAS GERAES.

The principal loans of Minas Geraes have been the following:

Issues.	Par value.	Original issue.
IN FRANC DENOMINATIONS.		
External $4\frac{1}{2}$ per cent loan.....	<i>Francs.</i> a 500	<i>Francs.</i> 120,000,000
Loan of 1911, $4\frac{1}{2}$ per cent.....	500	50,000,000
Loan of 1907, 5 per cent.....	500	25,000,000
Loan of 1896, 5 per cent.....	500	65,000,000
IN MILREIS DENOMINATIONS.		
Various issues at 5 per cent.....	<i>Milreis.</i> 1,000	<i>Milreis.</i> 55,141,200

a And £20.

A large majority of the franc bonds remain outstanding; toward the close of 1916 the 5 per cent bonds were quoted at 335 francs and the $4\frac{1}{2}$ per cent bonds at 305. At that time cash interest payments were in arrears. The 5 per cent milreis bonds remain outstanding to the amount of 53,641,200 milreis, the 1,000-milreis bonds being quoted in May, 1917, at 802 milreis.

The area of Minas Geraes is 221,950 square miles and the population about 4,500,000.

STATE OF GOYAZ.

The State of Goyaz, fourth in area among the States of Brazil, has a population of approximately 350,000. Its debt (internal) consists of 400,000 milreis 8 per cent bonds dated 1910 and due 1931.

STATE OF MATTO GROSSO.

The funded debt of this State is wholly internal in character. It takes the form of 8 per cent "apolices" or consols, and was largely issued in 1905 and 1908. The area of the State is 532,680 square miles and the population approximately 165,000. A late estimate placed the internal funded debt at 1,450,000 milreis, this figure being presumably somewhat below the present total.

STATE OF PARA.

The State of Para has an area of 443,900 square miles and a population of approximately 700,000. The State has on three occasions during recent years been a borrower in the British markets. These three loans were for the following amounts and bore the following rates of interest:

Date of loan.	Interest rate.	Original amount.	Approximate amount outstanding.
	<i>Per cent.</i>		
1901.....	5	£1,450,000	£1,339,250
1907.....	5	60,000	601,380
1910.....	6	200,000	(a)
1915 (funding).....	5	102,400	102,400

a Mostly redeemed.

The 5 per cent loan of 1901 was largely issued at 88 per cent. The loan is secured by the export duties and from the general revenues of the State, including railways and waterworks. The sinking fund

of one-half per cent per annum, cumulative, was to have retired the issue by 1952, but payments during the war have been suspended, and bonds will not be retired until the close of 1918. Interest for part of the period of the European war was paid in 5 per cent funding bonds at 115 per cent. The high price for bonds of this issue since 1911 was 102, the low price 41, and the price January, 1918, about 61.

The 5 per cent sterling bonds of 1907 were mostly issued at 87 per cent. They are secured by a charge (subject to the £79,426 for the service of the loan of 1901) on the export duties as well as on the revenues of the State, including railways and waterworks. The cumulative sinking fund of 1 per cent per annum was to have redeemed the entire issue within 37 years, but the crisis due to the European war caused the postponement of these sinking-fund payments until the end of 1918. The interest payments were made during a part of the war period in 5 per cent funding bonds at 110 per cent. These bonds sold at 102, and the price January, 1918, was approximately 61.

The £200,000 6 per cent Treasury loan of 1910 was secured by 10 per cent of the export duties and the revenues of the State. The issue was declared retirable at par by a sinking fund which was to draw or purchase bonds. A large majority of the bonds, if not the entire issue, has been redeemed.

The 5 per cent funding bonds of 1915 were issued in lieu of cash coupons to holders of the bonds of 1901 and 1907. The quotation January, 1918, was 70@73.

STATE OF PARAHYBA.

The State of Parahyba do Norte has an area of 28,850 square miles and a population of approximately 525,000. The public debt of this State is practically all held locally, being in the form of an issue of 6 per cent bonds dated 1896. The original issue was for 1,164,600 milreis, of which 295,100 milreis remains outstanding.

STATE OF PARANA.

The State of Parana has outstanding two bond issues held externally. The first of these issues was for £800,000; interest April and October at 5 per cent per annum; sinking fund one-half per cent per annum, cumulative, to retire the issue by 1956. The security consists of export duties. The loan was publicly offered in 1905 by the Ethelburga Syndicate at 83 and is held largely on the European continent, not being quoted on the London Stock Exchange.

The State's second external loan was floated in 1912. The original amount authorized was £2,200,000, of which £1,400,000 is outstanding. The loan is quoted on the Paris Bourse (375 francs per 500-franc bond at close of 1916) and elsewhere on the Continent. The interest rate is 5 per cent per annum, payable April and October.

The internal debt of Parana consists of 41,701 milreis 7 per cent bonds, of an original authorized issue of 6,000,000 milreis bonds, dated 1904. The bonds are quoted on the stock exchange at Rio de Janeiro.

The area of Parana is 85,450 square miles and the population approximately 400,000.

STATE OF PERNAMBUCO.

On two occasions the State of Pernambuco has been a borrower in the European markets. These loans both bear interest at 5 per cent

per annum, and the interest dates are January and July. The first issue was for 25,000,000 francs and was dated 1905, the sinking fund being 1 per cent per annum. These bonds were originally offered in Brussels and Antwerp, Belgium, at 92 per cent, and are secured by a first charge on the revenues of the State. Interest has been regularly maintained during the war period, and the bonds averaged in selling price on the Paris Bourse during 1916 about 75 per cent of par.

The 5 per cent loan of 1909 was floated in France, principally in Paris, Lyon, and Marseille. The issuance price was 93, the bonds being secured by a second charge on the revenues of the State, and also by the "patente tax," house tax, and revenue on sewerage and drainage works. The total amount of this loan was 37,500,000 francs, the bonds being issued in 500-franc denominations. Neither this issue nor the 5 per cent bonds of 1915 are quoted in London, Paris being the principal market.

The internal debt of the State of Pernambuco amounts to 21,726,850 milreis. The area of the State is 49,570 square miles and the population approximately 2,200,000, Pernambuco ranking fourth in population among the various States of Brazil.

In addition to being quoted in Paris, Brussels, and other European markets, the 5 per cent bonds of 1905 are quoted on the Stock Exchange at Rio, some of these bonds being held locally.

• STATE OF RIO GRANDE DO NORTE.

The State of Rio Grande do Norte floated a loan in Paris in the year 1910, the bonds bearing interest at 5 per cent per annum. Payments have regularly been made on this issue, which was for approximately £350,000.

The internal debt is represented by an issue of 242,000 milreis 8 per cent "apolices" (consols), the outstanding portion of an original issue of 500,000 milreis. The bonds are dealt in on the Stock Exchange at Rio and were quoted in May, 1917, at 640 milreis per 1,000-milreis bond.

The area of Rio Grande do Norte is 22,195 square miles and the population approximately 450,000.

STATE OF RIO GRANDE DO SUL.

Rio Grande do Sul has on various occasions issued internal loans bearing interest at 7 per cent, 6 per cent, and 5 per cent per annum. These issues have been brought out, usually in small amounts, under various dates. They have no stated maturity date. The approximate original issues and the amounts outstanding are shown in the following table:

Bonds.	Original issue.	Approximate amount outstanding.
	<i>Milreis.</i>	<i>Milreis.</i>
7 per cent bonds.....	1,850,000	351,000
6 per cent bonds.....	4,236,900	4,236,900
5 per cent bonds.....	768,000	768,000
Total.....	6,854,900	5,355,900

The 5 per cent bonds were quoted May, 1917, at 75 per cent.

This State has an area of 91,330 square miles and a population of probably 1,500,000.

STATE OF RIO DE JANEIRO.

In 1912 a loan for the State of Rio de Janeiro was floated in Great Britain, the amount being £3,000,000, of which approximately £2,950,000 remains outstanding. The interest rate is 5 per cent, payable April and October, and the sinking fund one-half per cent per annum. The original price of the loan was 96½ per cent, the high price since the bonds were issued on the London Stock Exchange, 94½, and the price January, 1918, 77. The low price for the issue during the war period was 59. The issue is secured by the whole of the revenues of the State, on a 2½ per cent additional and ad valorem sugar tax, and on the property tax of the city of Nictheroy, the capital of the State. The revenues of the State in 1912, the year of issue, totaled £770,886, the sugar tax £17,625, and the property tax £41,661.

The internal loans of the State are as follows:

Loans.	Original issue.	Amount outstanding.
	<i>Milreis.</i>	<i>Milreis.</i>
6 per cent loan.....	2,500,000	9,500,000
5 per cent loan of 1898.....	300,000	300,000
4 per cent loan of 1902.....	20,000,000	16,998,700

The interest dates on the three issues are January and July. Quotations for the 6 per cent loan, as of May, 1917, averaged 440 milreis per 500-milreis bond; the 4 per cent loan (100-milreis bonds) was quoted at 89.

The State of Rio de Janeiro has a population in excess of 1,300,000; the area of the State is 26,630 square miles.

STATE OF SANTA CATHARINA.

In the year 1909 the State of Santa Catharina floated a loan for £468,750 in the European markets; £250,000 of this issue was sold to London bankers, but was subsequently resold in France. Upward of 10 per cent of the issue has been retired through the operations of a sinking fund of 2 to 2½ per cent per annum. The issue is secured by a first charge on the taxes on exports and capital. Interest has regularly been met on this issue, and the bonds were quoted late in 1916 at approximately 80 per cent of par.

The State has two internal loans of importance, both issues bearing interest at 5 per cent per annum. The principal of these issues amounts to 696,900 milreis and 2,000,000 milreis.

The area of the State is 28,630 square miles and the estimated population 425,000.

STATE OF SÃO PAULO.

The State of São Paulo, the world's greatest coffee center, has an area of 112,300 square miles and a population of approximately 3,500,000. The area as stated is about equal to that of all New England and New York State combined.

The total external debt of the State amounts to approximately £6,675,000 and the internal debt to approximately 115,000,000 milreis. The interest and amortization of the debt require approximately

£800,000 annually. The State is the owner of railroads (Sorocabana Railway, etc.) to the value of approximately \$24,000,000 United States currency, water supply and sewerage property valued at \$16,850,000, and buildings at São Paulo, Santos, etc., valued at \$22,115,000.

In October, 1888, the State contracted a loan of £787,500 at 97½ per cent, secured by a direct charge on its revenues, redeemable in 37 years by means of a cumulative sinking fund, the final date being 1925. The amount of the loan outstanding at the close of 1916 was £357,000. The market price of these bonds as of January, 1918, was 91½ per cent, as compared with the high price since 1911 of 103.

Another issue to the amount of £350,000 was made in 1888 for the purpose of acquiring and extending a system of waterworks. The original issue was for £350,000 and has been nearly extinguished. The original offering price was 90. Interest is payable April and October.

In 1904 there were issued £1,000,000 5 per cent bonds, these being floated in London. A cumulative sinking fund of 1½ per cent per annum will retire the issue by 1934. The bonds are secured on the general revenues and assets of the State. The price, January, 1918, was 91.

In 1905 an issue of £3,800,000 5 per cent bonds was floated, largely in France, Germany, and elsewhere on the Continent of Europe, the proceeds to be used to purchase, extend, and develop the Sorocabana Railway. Approximately £3,500,000 bonds remain outstanding.

In 1913 an issue of £7,500,000 5 per cent Treasury bonds was authorized. Of these £4,000,000 were publicly offered at 97 per cent in London, Amsterdam, and Switzerland. The rest were subscribed—£2,500,000 by French bankers and £1,000,000 in Berlin, Germany. The loan is secured by a tax on coffee grown or exported and on coffee owned by the State. The entire issue is to be redeemed by 1923 by purchase in the market at or below par and by drawings at par. At the close of 1917 the issue had been reduced to £3,443,960 and at present the amount outstanding is smaller. The price, January, 1918, was 99.

In 1914 an issue of £4,200,000 two-year 5 per cent Treasury notes was sold, largely at 97 per cent. These were subscribed in London, Paris, Amsterdam, Hamburg, and elsewhere in Europe and were secured on the surtax on coffee. The notes matured January 1, 1916, and were largely extended. The notes were quoted in January, 1918, at 99¼ per cent.

The principal internal issues are as follows:

"Apolices." ¹	Interest rate.	Date of maturity.	Original issue.	Amount outstanding. ²
	Per cent.		Milreis.	Milreis.
Third series.....	6	1952	5,000,000	4,792,500
Fourth series.....	6	1957	4,000,000	3,863,500
Fifth series.....	6	1953	4,000,000	3,863,500
Sixth series.....	6	1958	8,000,000	7,844,000
Seventh series.....	6	1960	10,000,000	10,000,000
Eighth series.....	6	1960	10,500,000	10,500,000
Ninth series.....	6	1960	25,000,000	25,000,000
Tenth series.....	6	1938	25,000,000	25,000,000

¹ These issues are quoted on the Stock Exchange at São Paulo, and the May, 1917, quotation was 975 milreis per 1,000-milreis bond.

² Subject to slight variations.

STATE OF SERGIPE.

The State of Sergipe has an area of approximately 15,090 square miles and a population of probably more than 450,000. The State has no external debt, although it has two issues of internal bonds outstanding. These issues are as follows: Loan of 1907, 7 per cent, 1,500,000 milreis, par value 200 milreis; loan of 1915-16, 7 per cent, 2,500,000 milreis, par value 200 milreis. The loan of 1915-16 was admitted to quotation October, 1915. Its final amortization date is October, 1975. The issuance price was 90.

MUNICIPAL ISSUES.

Brazilian municipal external loans have found favor among European investors, and in the days before the war brought high prices. Rio de Janeiro, São Paulo, Para, Bahia, Bello Horizonte, Manaos, Pelotas, and Santos have been the principal borrowers, and their financial operations will be briefly reviewed here. São Paulo is the only municipality that has thus far contracted a loan in the United States, the 6 per cent bond issue floated in New York at the close of 1915 having been popularly received by investors.

CITY OF BAHIA.

The city of Bahia has two external loans outstanding, one of which was issued in Paris and the other in Paris and London. The French loan was originally for 25,000,000 francs and was declared redeemable by 1941. The loan was brought out in 1905 and was publicly offered at 82 per cent. The security assigned for its service was the revenue derived from water, drainage, and the local market.

The second loan was for £1,600,000 (40,000,000 francs), and was offered in 1912, mostly at 94½ per cent. The annuity required for the service of the loan was stated to be £87,398 and certain taxes. The security assigned for this loan consisted of the taxes on houses, industries, and professions. The interest rate on the loan is 5 per cent. The coupon due August 1, 1914, was not paid in cash, but was funded, together with later coupons, into 5 per cent funding bonds. The bonds of the issue of 1912 were quoted in January, 1918, at 61 per cent, as compared with the original offering price of 94½, as stated.

The internal debt of Bahia was stated in 1916 to amount to £733,315.

The population of the city is stated as nearly 300,000, and its revenue during a normal year (1912) totaled £368,500.

In addition to the external debt stated above, the municipality of Bahia, on March 19, 1914, issued a provisional bond for £1,521,000, bearing interest at 6 per cent per annum and redeemable by a sinking fund of ½ per cent per annum, in exchange for the undertakings of the Bahia Tramway, Light & Power Co. and the Compagnie d'Éclairage de Bahia, the loan being collaterally secured by a mortgage on the public-utility properties formerly operated by the two companies. Interest payments were delayed on these bonds, but were made March 29, 1915, £40,000 in cash and £42,000 in promissory notes due July, 1916. These notes were not met at maturity, and all other interest payments have been delayed.

BELLO HORIZONTE.

The municipality of Bello Horizonte issued during the year 1905 £225,000 6 per cent bonds, guaranteed as to principal and interest by the State of Minas Geraes. One-half of the issue was offered in London and one-half in Amsterdam, the offering price having been 97 and 98½, respectively. Revenues to the estimated amount of £25,937 have been assigned to the issue, of which approximately £216,000 remains outstanding. The coupon due September 30, 1914, was paid in cash during January, 1915, and subsequent payments were, for a time, suspended. The bonds sold as high as 106 prior to the European war and were quoted at 75 in January, 1918.

The internal debt of the municipality consists of 2,500,000 milreis 6 per cent bonds, which have a par value of 200 milreis, and which sold during May, 1917, at 155 milreis (77½ per cent). The population of the city is probably not less than 35,000.

MANAOS.

The city of Manaos issued in London, during the year 1906, £350,000 5½ per cent bonds, with a sinking fund of 1½ per cent per annum, cumulative, commencing May, 1907. The issuance price of the bonds was 91 per cent, and they subsequently sold at least as high as 101 per cent. The coupons due November, 1914, and the 1915 coupons were delayed six months. In January, 1918, the quotation for the bonds was 82 per cent. The population of the city is estimated at 60,000. The bonds here described are secured on the revenues from the municipal market and slaughterhouse.

CITY OF PARA.

Para has outstanding three external loans, the bonds of which are mostly held in Great Britain, France, and Belgium. These issues were originally for £1,000,000, £600,000, and £600,000, respectively, all bearing interest at 5 per cent per annum. The loan of 1905 was for £1,000,000, of which £921,040 remained outstanding in 1917. Bonds to the amount of £252,580 were sold at 86 per cent and the rest used for the conversion of internal loans. The bonds were secured on all rent and license taxes, and provision was made, in case these taxes proved insufficient, whereby the general revenues of the city were to be drawn upon. The interest and principal of the loan are payable in London and Para. The sinking fund is ½ per cent cumulative. Since shortly after the outbreak of the European war, the interest has been payable in funding scrip at 110 per cent. At the closing of the London Stock Exchange July 27, 1914, the price of the bonds was 70 per cent; since that time, however, they have declined to below 50 (42@45 January, 1918).

The 5 per cent loan of 1906, of which £600,000 was issued and approximately £565,000 remains outstanding, is secured on the remainder of the revenues of the municipality after provision is made for the loan of 1905. The sinking fund of ½ per cent per annum was to have retired the loan by 1958. The interest was declared payable in London, Brussels, and Para, and the bonds are not regularly quoted in London. Interest during 1915 and subsequently has been funded. Most of the bonds are in 500 and 2,500 franc denominations.

The 5 per cent loan of 1912, of which £600,000 bonds were issued and £590,000 remain outstanding, is secured by the municipal revenue remaining after provision is made for the loans of 1905 and 1906. The bonds are not regularly quoted in London, but are mostly held in Brussels and elsewhere in Belgium. The sinking fund on this issue is $\frac{1}{2}$ per cent per annum, cumulative, but has been suspended owing to the effect of the European war on the finances of Para. The interest on the loan has been funded.

The funding bonds issued in lieu of cash coupons were quoted in January, 1918, on the London Stock Exchange at 63-66.

The city of Para (Belem do Para) is the capital and chief city of the State of Para and the principal port of the Amazon River district. Its population probably exceeds 250,000.

PELOTAS.

The municipality of Pelotas, State of Rio Grande do Sul, has a population of approximately 65,000 and is one of the most important cities in that State. Under authority of the municipal council, dated September 24, 1910, the city sought a loan abroad, the principal of which amounted to £600,000. The loan was placed in Great Britain and in Switzerland, the original offering price being 95 $\frac{1}{2}$ per cent. Interest is payable at the rate of 5 per cent per annum, semi-annually (June 30 and December 31), and there is a sinking fund that will retire the issue by 1962. The security consists of the general revenues of the city and the house tax. Approximately £580,000 bonds remain outstanding. The high price on the London Stock Exchange for bonds of this issue has been 97, the low price 70, and the price in January, 1918, 73. The bonds bear the guaranty as to principal and interest of the State of Rio Grande do Sul.

The revenue from the house tax averages between £20,000 and £25,000 per annum, and the average prewar revenue of the city was approximately £110,000 per annum.

CITY OF PERNAMBUCO (RECIFE).

Pernambuco (Recife) has a population in excess of 200,000 and is one of the most important ports of the Republic. Its external debt consists of an original issue of £400,000 5 per cent bonds unconditionally guaranteed as to principal and interest by the State of Pernambuco. Approximately £393,000 of the bonds remain outstanding. The security assigned to the issue consists of a first charge on the revenues of the markets of Boa Vista and São Jose. The sinking fund of $\frac{1}{2}$ per cent per annum commenced operations in 1911. Part of the proceeds of this loan were used to retire the then outstanding £172,000 internal debt. The revenues of the Boa Vista and São Jose markets during the five years prior to the European war were between £26,705 and £35,389. The bonds were publicly offered in May, 1910, in London at 93 $\frac{1}{4}$ per cent. The high price of the bonds since 1911 has been 99 and the low price about 64 $\frac{1}{2}$. During January, 1918, they were quoted (in London) at 71.

PORTO ALEGRE.

Porto Alegre is the capital of the State of Rio Grande do Sul and has a population of 125,000. Its external loan, which was for

£600,000, was originally offered in June, 1909, in London and Amsterdam, at 93½ per cent. The interest dates are June and December 20, and the bonds are redeemable within 35 years (June 20, 1914). The entire house tax of the city has been assigned for the service of the loan, as well as the general revenues. In the normal year 1912 the house tax amounted to £75,507 and the general revenues of the city to £179,629. The highest price of the bonds on the London Stock Exchange since 1911 was 99½, the low price 77½, and the price in January, 1918, 81. The bonds are guaranteed as to principal and interest by the State of Rio Grande do Sul. All the proceeds of the loan were used to retire maturing funded debt.

CITY OF RIO DE JANEIRO.

Rio de Janeiro, the magnificent capital of Brazil, has a population of more than 1,000,000. On several occasions during recent years the city has sought loans abroad. There follows a list of outstanding external loans of the city and data concerning them:

Loans.	Original issue.	Approximate amount outstanding.	Original price.	High price since 1911.	Price, January, 1918.
4 per cent loan of 1889.....	£562,500	£300,000	87½	99	77
5 per cent loan of 1904.....	4,080,000	3,700,000	a 85	103	79
5 per cent loan of 1909.....	2,000,000	1,700,000	92	104	83
4½ per cent loan of 1912.....	2,500,000	2,300,000	92½	94	72

a Issued in Rio de Janeiro at 85 and in London at 87½.

The 4 per cent loan of 1889 is repayable by an annual cumulative sinking fund of 1 per cent per annum, which will completely retire the issue by 1930. Interest on the issue is payable February and August, and the loan is secured by the revenue derived from the public market, the slaughterhouse, and the Maua Warehouses. The par value of the bonds is £100.

The 5 per cent loan of 1904 is redeemable within 50 years from date of issue by a sinking fund, and interest is payable April and October 1. The revenue from the property tax is assigned to the service of this issue. The proceeds of the issue were used for the improvement and sanitation of the city, and also for the paying off of internal "apolices" or consols.

The 5 per cent issue of 1909, interest on which is payable June and December 1, is guaranteed principal and interest by the Republic of Brazil. The loan was issued in Great Britain, the Netherlands, and Germany, while a few of the bonds are held in France. Interest is payable in pounds sterling, francs, marks, and guilders. The sinking fund is 2 per cent per annum, cumulative, the issue to be redeemed by 1935. The revenues of the trades-and-professions tax is assigned to the issue, this tax during the last year before the European war (1913) amounting to £269,963.

The 4½ per cent loan of 1912 was disposed of in Great Britain and the Netherlands. Interest is payable April and October 1, and there is a sinking fund of 1 per cent per annum, cumulative, redeeming the issue within 39 years of issue. A portion of the proceeds of the house-property tax has been assigned for the service of the issue.

The proceeds of this issue were to be used for the redemption of the 1896-1900 6 per cent loans to the amount of £869,000, for the repayment of £536,000 floating debt, and for municipal improvements. The authorized total of this issue is £10,000,000.

In addition to a large part of the £4,000,000 5 per cent external loan of 1904, the following internal loans are mostly held locally:

Loans.	Original issue.	Approximate amount outstanding.	Par value.	Market price. ^a
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
6 per cent loan of 1906.....	30,000,000	29,891,000	200	194 (97 per cent).
5 per cent loan of 1909.....	4,000,000	3,610,000	200	167 (84 per cent).
6 per cent loan of 1914.....	20,000,000	20,000,000	200	184 (92 per cent).

^a May, 1917, Rio de Janeiro.

The interest on the 6 per cent loan of 1906 is payable April and October, on the 5 per cent loan of 1909 January and July, and on the 6 per cent loan of 1914 March and September. The issues are listed on the Stock Exchange at Rio de Janeiro and enjoy a good local market.

A loan that is not directly an obligation of the municipality, known as the Rio de Janeiro 5 per cent Benedictine Order Gold Loan of 1909, for £300,000, has been marketed abroad. The loan was authorized by the Government of Brazil and by the General Chapter of the Benedictine Order in Brazil, was issued for free educational purposes, and is secured on lands and buildings with a stated valuation of £650,000. The sinking fund, which commenced operations in 1915, will retire the issue by July, 1959. Interest is payable January and July, and the bonds may be retired as a whole at 103 on three months' notice. They are free from all Brazilian taxes.

SANTOS.

Santos, the principal coffee port of the world, has a population of probably 75,000. Its external and internal debt consists of the following loans:

Loans.	Original issue.	Approximate amount outstanding.	Original price.	High price since 1911.	Price January, 1918.
6 per cent loan of 1888.....	£100,000	£28,200	(?)	105	93
6 per cent loan of 1910.....	1,000,000	980,000	97	105	80
7 per cent funding loan of 1915.....	(a)	(a)	(a)	(a)	93

^a See second paragraph following.

The interest on the 6 per cent loan of 1888 is payable February and August, and the bonds are secured on alcoholic-liquor and license taxes.

The 6 per cent loan-of-1910 bonds have their value expressed both in British and Portuguese currency. April 30 and October 31 were the coupon dates assigned, and the sinking fund was fixed at 9.3444 per cent, cumulative, per annum. The coupon on this issue due Oc-

tober 31, 1914, was not met until January 31, 1915, when it was paid with interest added for three months at 6 per cent. Subsequent coupons during 1915 and 1916 and until October 31, 1917, were funded into 7 per cent bonds, repayable by April 30, 1933. Certain taxes have been assigned for the service of the issue of 1910 and of the 7 per cent funding bonds. The sinking fund on the latter issue commences operation January, 1919, and interest is payable April 30 and October 31.

The exports through Santos in 1916 totaled \$117,511,778 and the imports \$51,737,284.

CITY OF SÃO PAULO.

The city of São Paulo has an area of 14 square miles and a population of nearly 500,000, representing an eight-fold increase during the past 33 years. More than one-third of the people are of foreign birth and fully an additional third are direct descendants of Europeans. The factories of the city represent an investment of \$12,000,000 and produce annually about \$20,000,000 worth of goods. About 40,000 workmen are employed in these factories. The revenues of the city for 1915 were \$2,162,900 and the expenses \$2,030,500.

In 1908 São Paulo contracted a loan in London amounting to £750,000, bearing interest at the rate of 6 per cent per annum (payable January and July 1) and redeemable by January, 1944, through the operations of a 1 per cent sinking fund, cumulative. The loan is secured by the general revenue of the city and by the hypothecation of the revenue derived from the tax on trades and professions. It was estimated at the time of the bond issue that this tax would amount to £125,000 per annum. Approximately £650,000 of the bonds remain outstanding. The bonds were quoted at 95½ in January, 1918.

Late in 1916 the city arranged a loan for \$5,500,000 with the New York banking firm of Wm. Morris Imbrie & Co., and the Equitable Trust Co., of New York. The loan bears interest at 6 per cent per annum and matures serially January 1, 1919 to 1928. The prices at which the loan was publicly offered in the United States were 96.09 to 100, the prices depending on the maturity dates. The yield basis was 6 to 6½ per cent.

The internal loans of the city outstanding in 1916 bore interest at 7 per cent and 6 per cent per annum. These loans were in six series hereinafter enumerated. The bonds mostly enjoy a good local market, being listed on the stock exchange at São Paulo (one of the issues is also listed at Rio de Janeiro). The list of issues, amount outstanding, maturity date, and other data will be found in the following table:

Issues.	Interest rate.	Date of maturity.	Original issue.	Amount outstanding. ^a	Quotation May, 1917.
	<i>Per cent.</i>		<i>Milreis.</i>	<i>Milreis.</i>	
First issue.....	7	1970	600,000	525,000	84
Second issue.....	7	1961	1,000,000	742,900	82
Viaduct loan.....	6	1990	700,000	622,500	74
Issue of 1913 ^b	7	1962	14,868,600	14,868,600	84
Issue of 1914 ^b	7	1919	10,000,000	7,169,500	92½
Italian Bank Loan.....	7	.....	11,791,000	11,791,000	.....

^a Year 1916.

^b The loans of 1913 and 1914 were each offered at 90 per cent of par (100 milreis).

INTERNAL AND SEMIEXTERNAL OBLIGATIONS OF BRAZILIAN MUNICIPALITIES.

A large number of Brazilian cities and towns have contracted internal loans. These enjoy favor among Brazilian investors, and in many instances sell to yield very satisfactory returns. The following partial lists of bonds of this character listed in Rio de Janeiro and São Paulo will indicate the prices, yields, etc.:

RIO DE JANEIRO STOCK EXCHANGE.

Municipalities.	Interest rate.	Original issue.	Amount outstanding.	Par value.	Price, August, 1917.
	<i>Per cent.</i>	<i>Milreis.</i>	<i>Milreis.</i>		
São Jose de Alem Parahyba.....	7	400,000	(?)	200	198
Petropolis.....	7	520,000	126,800	200	-----
Alenas (State of Minas Geraes).....	9	100,000	80,000	100	105
Bage (Rio Grande do Sul).....	7	1,000,000	1,000,000	1,000	1,030
Bello Horizonte.....	8	2,500,000	2,500,000	200	155
Nichteroy.....	6	4,500,000	4,500,000	100	79

NOTE.—In addition to the above, there remains outstanding the balance of two 7 per cent issues, 5,000,000 milreis and 1,000,000 milreis, of the municipality of Nichteroy. The issues are dated 1908 and 1910, respectively.

SÃO PAULO STOCK EXCHANGE.

Municipalities.	Interest rate.	Date of maturity.	Original issue.	Amount outstanding.	Original price.	Price, May, 1917.
	<i>Per cent.</i>		<i>Milreis.</i>	<i>Milreis.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Campinas.....	6	1961	5,500,000	5,458,600	90	76
Capivary.....	7	1961	1,000,000	985,200	90	40
Jahu.....	7	1943	1,800,000	1,758,900	92½	75
Itu.....	7	1953	1,285,000	1,281,900	(?)	50-65
Amparo.....	8	1950	1,300,000	1,192,100	94	90
Araraquara.....	8	1960	1,000,000	978,940	93	80
Barretos.....	8	1941	800,000	800,000	90	70
Bauru.....	8	1961	500,000	500,000	100	52
Itapetininga.....	8	1951	800,000	880,000	85	34
Mococo.....	8	1961	750,000	732,900	92	78
Ribeirão Preto.....	8	1956	2,000,000	1,989,300	85	90
S. João da Boa Vista.....	8	1951	1,000,000	982,200	95	70
São Carlos.....	8	1971	1,250,000	1,250,000	92	72
Santa Cruz de Rio Pardo.....	8	1941	1,000,000	667,700	95	26-35
Botucatu.....	10	1935	471,000	440,600	85	95
Jacarehy.....	10	1932	305,000	306,000	85	15
S. João de Bocaina.....	10	1934	250,000	225,100	85	80
Taquaratinga.....	10	1935	500,000	492,300	85	60
São Simão.....	12	1926	235,000	203,400	-----	102
Uberaba.....	8	1931	350,000	343,500	90	90

NOTE.—Par value of above issues usually 1,000 milreis.

With about four exceptions, which are indicated by prevailing prices, all of the above issues, together with a large number of other municipal bonds not mentioned above, pay their interest regularly. As may readily be seen, the income yields on these securities are very large in every instance, averaging between 9 and 12 per cent; the yields to maturity, with the single exception of the São Simão 12 per cent bonds, being still larger—in some instances exceeding 15 per cent per annum.

In addition to the bonds mentioned in the preceding table there are listed in São Paulo several municipal obligations of a semi-external character, these bonds being held partly in France and partly locally. These issues include the following:

Municipalities.	Interest rate.	Date of maturity.	Original issue.	Amount outstanding.	Original price.
	<i>Per cent.</i>		<i>Francs.</i>	<i>Francs.</i>	<i>Per cent.</i>
Jundiáhy.....	7	1920	2,185,000	2,185,000	87
São Bernardo.....	7	1941	700,000	677,500	87
Piraju.....	7	1945	1,857,500	1,857,500	90
Bebedouro.....	8	1943	1,015,500	1,015,500	85
Itatiba.....	7	1941	650,000	650,000	85
Casa Branca.....	8	1950	685,000	685,000	83

None of these issues is actively quoted. Interest on the Jundiáhy issue is payable January and July, on the São Bernardo issue May and November, and on the other issues March and September. The bonds are in 500-franc denominations.

BANKS.

The great banking centers of Brazil are naturally Rio de Janeiro and São Paulo. Santos ranks third in importance, with Bahia, Para, Pernambuco, Rio Grande do Sul, and Porto Alegre holding a very large percentage of the remaining deposits.

There are a considerable number of foreign or semiforeign banks in the Republic. The National City Bank of New York has been the pioneer American institution in the field, having established successful branches at Rio de Janeiro, São Paulo, Bahia, and Santos. These branches are well patronized and give evidences of continued growth and prosperity. The British banks in the field are the London and Brazilian, the London and River Plate, and the British Bank of South America. The London and Brazilian Bank has an authorized capitalization of £2,500,000 (of which £1,250,000 has been issued) and a reserve fund of £1,400,000. Branches and agencies are maintained in Brazil at Rio de Janeiro, São Paulo, Manaus, Para, Ceara, Pernambuco, Bahia, Santos, Curitiba, Rio Grande do Sul, and Porto Alegre, as well as in Great Britain, the United States, Portugal, Argentina, and Uruguay. The London and River Plate Bank has branches at Rio de Janeiro, São Paulo, Santos, Para, Pernambuco, Bahia, Victoria, Curitiba, and Manaus. The British Bank of South America is established at Rio de Janeiro and in several other cities in the Republic.

Germany, prior to the war, in carrying out its policy of trade expansion in South America, had established banks in most of the important trade centers of Brazil. The Banco Alemán Transatlántico maintained five branches in the Republic, while the Brasilianische Bank für Deutschland had five branches and by far the largest deposits of any of the German institutions. The Deutsch-Südamerikanische Bank also maintained a branch. The first named of these banks, established primarily for the Brazilian trade, paid, during the 27 years prior to the outbreak of the European war, 270½ per cent in dividends, an average of 10 per cent per annum. The more recent returns of this bank and other German institutions in Brazil have not warranted expectations of increased dividends. The Brasilianische Bank für Deutschland is controlled in the interest of the Diskontogesellschaft and the Norddeutsche Bank, both of Germany. It was

founded in 1887 with a capitalization of \$2,500,000, of which 25 per cent was paid in. Its present capitalization is \$3,750,000. Its principal branches are located in Rio de Janeiro, São Paulo, Santos, Bahia, and Porto Alegre. The Banco Alemán Transatlántico maintains 4 of its 26 South American branches in Brazil, these being located in Rio de Janeiro, São Paulo, Santos, and Petropolis. This institution is controlled by the Deutsche Bank, of Germany, and is capitalized at \$7,500,000. It has been one of the pillars of German power in South America, and previous to the breaking of diplomatic relations by several of the Latin Republics wielded great influence in international affairs. The Deutsch-Südamerikanische Bank has established a branch in Rio de Janeiro, which, among its South American agencies, is second in importance only to its branch in Buenos Aires. It is controlled by several important German banks, was established in 1906, and is capitalized at \$5,000,000.

There are a number of other important foreign banking institutions in Brazil. The Banco Hollandez da America do Sul (Dutch Bank of South America) has a branch in Rio de Janeiro. The authorized capital of this bank is 25,000,000 florins, of which 14,000,000 florins shares have been issued and are outstanding. The Banco Nacional Ultramarino, which has its head office at Lisbon, Portugal, and branches throughout Portuguese Africa, has also entered the field. The capitalization of the bank is 7,200,000 Portuguese milreis shares of a par value of 90 milreis. A portion of the capitalization is held in Brazil. The bank was founded in 1864 and has steadily increased in commercial importance.

The French and Italian Bank for South America, founded in 1900 with head office in Paris, has a capital of 25,000,000 francs and a reserve of 11,150,000 francs. The shares of this bank have a par value of 500 francs and are partly held in Brazil, being listed on the stock exchanges of Rio de Janeiro and São Paulo. A dividend of 8 per cent was paid in 1916. The head office of this bank is at Paris. The Banque Brésilienne Italo-Belge has a capitalization similar to that of the French and Italian Bank, 25,000,000 francs, and is an important institution in São Paulo. The French Bank for Brazil is a more recent institution, having been founded in 1912. It is largely controlled in Antwerp and its capitalization is 15,000,000 francs. These two last-mentioned banks are in liquidation.

There follows a list of important national and foreign banks operating in Brazil, with the capitalization, reserves, last dividend payments, etc. The figures are those of the Rio de Janeiro Stock Exchange, as of March 31, 1917:

National and foreign banks.	Capital.	Par value.	Paid in.	Reserves.	Last dividend.	Last sale.
Brasil.....milreis..	70,000,000	200	200	8,987,551	8 milreis.....	<i>Milreis.</i> 210
Brasilianische Bank für Deutschland.....marks..	15,000,000	1,000	1,000	8,100,000	8 per cent.....	
Brésilienne Italo-Belge.frances..	20,000,000	500	200			
British Bank of South America, pounds sterling.....	2,000,000	20	10	1,091,826	10 shillings.....	
Commercial do Rio de Janeiro, milreis.....	10,000,000	200	200	3,405,822	7 milreis.....	155
Comercio.....milreis..	7,000,000	200	200	4,465,931	7 milreis.....	158
Comercio e Industria de São Paulo.....milreis..	10,000,000	200	200	20,705,584	18 milreis.....	
Commercial do Estado de Sro Paulo.....milreis..	12,000,000	200	120	853,552	4.2 milreis.....	
Constructor do Brasil.....do..	1,312,000	100	100	838,981	3 milreis.....	
Credito Hypothecario e Agricola do Estado da Bahia.....frances..	10,000,000	500	50			
Credito Rural de Minas Geraes, milreis.....	7,000,000	200	145	1,260,933	6 per cent.....	180
Credito Rural e Internacional milreis.....	1,400,000	200	200	232,966	3 milreis.....	129
Credito Hypothecario e Agricola de São Paulo.....frances..	10,000,000	500	250	2,135,260		
Credit Foncier du Brésil.do..	50,000,000	500	250	3,371,299		
Español del Río de la Plata, Argentine gold pesos.....	100,000,000	100		48,501,647	12 per cent.....	
Estado do Rio de Janeiro, milreis.....	2,000,000	10	20	7,159		
Frances Italiano per l'America do Sul.....frances..	25,000,000	500	500	12,225,344	8 per cent.....	
Funcionarios Publicos.milreis..	1,497,500	50	50	561,728	3 milreis.....	60.5
Hypothecario do Brasil.....do..	16,000,000	200		2,951,575	1 milreis.....	41
London & Brazilian Bank (Ltd.).....pounds sterling..	2,500,000	20	10	1,250,000	17 per cent.....	
London & River Plate Bank (Ltd.).....pounds sterling..	4,000,000	25	15	2,000,000	15 per cent.....	
Lavoura e Comercio do Bra- sil.....milreis..	5,530,000	200	200	417,520	7 milreis.....	150
Mercantil do Rio de Janeiro, milreis.....	5,000,000	200	200	460,427	8 milreis.....	205
Nacional Brasileiro.....do..	2,000,000	200	200	785,793	7.5 milreis.....	175
Nacional Ultramarino.escudos..	7,200,000	90	90	2,860	6 per cent.....	800
Provincia do Rio Grande do Sul.....milreis..	10,000,000	200	100	9,463,797	6 milreis.....	245
União de São Paulo.....do..	10,000,000	200	200			

a Milreis.

The Banco do Brasil, which is a semigovernmental institution, is capitalized, as stated, at 70,000,000 milreis. Its annual dividend rate is 16 milreis payable January and July, equal to 8 per cent per annum on the 200-milreis stock. The regular deposits as of April 30, 1917, amounted to 193,469,924 milreis. The original Banco do Brasil was founded in 1809 with a capitalization of \$2,000,000. This bank failed in 1828 and was liquidated in 1829. In 1852 a new Banco do Brasil was founded. In the early stages of the Paraguayan war it experienced difficulties, from which, however, it recovered with some degree of success. In 1893 the bank was amalgamated into the Banco da Republica, assuming the latter title, which was held until 1905, when it again became the Banco do Brasil. Its present dividend of 8 per cent compares with the 1912 and 1913, pre-war, rate of 10 per cent per annum.

The Banco do Comercio e Industria de São Paulo is a very important institution. Its head office is at São Paulo, and agencies are maintained at Santos and Ribeirão Preto. This is primarily a bank for the financing of coffee crops and enjoys considerable prosperity, its 200-milreis shares being quoted at about 500 milreis. The bank was founded in 1889 and its shares are widely held in São Paulo.

INSURANCE COMPANIES.

There follows a list of important insurance companies, mostly local, doing business in the Republic of Brazil. The table shows capitalization, value of shares, etc.:

Companies.	Capitaliza- tion.	Par value.	Paid in.	Reserves.	Last sale.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
Anglo Sul-Americano.....	2,000,000	200	80	314,134	100
Aliança da Bahia.....	3,000,000	1,000	1,000	3,007,836	-----
A Mundial.....	500,000	100	100	139,798	-----
Argos Fluminense.....	2,100,000	700	700	1,280,083	1,020
Brasileira de Seguros.....	2,000,000	200	80	165,556	-----
Brasil.....	1,000,000	100	40	61,943	38
Caixa Geral das Famílias.....	1,600,000	200	100	959,636	-----
Confiança.....	2,000,000	200	70	508,802	100
Cruzeiro do Sul (life insurance).....	800,000	200	200	1,174,345	95
Garantia.....	2,500,000	1,000	300	358,607	325
Indemnizadora.....	1,000,000	1,100	40	-----	20
Integridade.....	2,000,000	200	70	137,790	60
Minerva.....	1,000,000	100	40	2,353	24
Paulista.....	2,000,000	500	100	1,450,103	-----
Pelotense.....	2,000,000	200	85	358,100	140
Previdente.....	2,000,000	400	400	1,086,048	510
Sul America (life insurance).....	500,000	250	100	35,870,945	250
Taregistas.....	1,000,000	200	150	447,943	250
União dos Proprietários.....	500,000	100	50	670,050	100

RAILWAY DEVELOPMENT.

Brazil stands second in railway mileage operated among the various South American countries. There are more railways in Brazil than in any other South American Republic, but many of these lines are short and unimportant. The total railway mileage to-day exceeds 16,540 miles, comparing with 9½ miles in 1854, 265 miles in 1863, 578 miles in 1872, 2,768 miles in 1882, 7,027 miles in 1892, 9,725 miles in 1902, 10,938 miles in 1907, and 14,213 miles in 1912. That there is room for railway development on a much larger scale than heretofore is an unquestionable fact. Brazil's amazing potential wealth, once more population is secured, is certain to be developed on an ever-increasing scale and will create a far greater volume of railway traffic than is being handled at the present time. The economic unity of the Republic is largely dependent on systems of railways that will link the great centers of wealth and population one with another. Although the Brazilian States are harmonious and loyal to the nation, commercially and industrially they are independent to a very marked extent.

Although Brazil borders on all of the South American countries with the exception of Chile, it is in direct rail communication only with Uruguay, and in making connections with the Uruguayan railways a break in gauge is necessary. Interchange of traffic between Uruguay and Brazil has been recently much improved through the establishment of an international passenger-train service, with weekly trips between São Paulo and Montevideo. Sleeping and dining cars are carried, and only two changes of cars are necessary, neither of these occasioning a wait of more than a few minutes. The running time of trains between the two cities is 108 hours and 30 minutes, and the service is generally very good.

The uneven topography of Brazil has had much to do with retarding railway development. Rio de Janeiro, unlike Buenos Aires and Montevideo, is surrounded by a veritable wall of abrupt mountains, which has rendered construction costly in the extreme. Important railways such as the Leopoldina, the Central of Brazil, the São Paulo, and the Parana have had to contend with considerable engineering difficulties because of the rough, uneven territories traversed.

Railroads were first talked of in Brazil at as early a date as 1835. In that year a bill was introduced in Congress and duly passed, authorizing the granting of concessions to build railways from Rio de Janeiro into the Provinces of Minas Geraes, Bahia, and Rio Grande do Sul, a program that has not yet been fully carried out. A concession to build a line from Rio to Campanhia was granted in 1838, but no effort was made to construct the line. In 1840 Dr. Thomas Cochrane secured an exclusive privilege for 80 years to build "an iron road to extend from near Rio de Janeiro to São Paulo, by means of a company of Brazilians or foreigners to be organized by him." In the concession it was stated that "in the railway of the company shall be employed cars moved by animals or by steam or by any other subsequently discovered agent that may best accomplish the desired end of carrying persons or articles of labor and industry of whatever nature, with security, economy, and rapidity." The capitalization of the company was fixed at 8,000,000 milreis. The concession lapsed in 1845 and, by payment of a fine, was extended. Cochrane was never able to carry out his scheme and his concession simply acted as an obstacle in the way of others financially able.

It was not until 1854 that the first railway mileage in Brazil was placed in operation. The first railway was 5 miles in length and extended from Maua on the north shore of Rio de Janeiro harbor to Fragosa. This line was carried up the Petropolis Mountain a short time afterwards and to-day forms a part of the Leopoldina Railway system. Among South American railways this line is outdated only by the Demerara Railway, in British Guiana, and by the Caldera to Copiapo Railway, built by Wheelwright in Chile.

CENTRAL OF BRAZIL RAILWAY.

The existing Central of Brazil Railway came into being in 1852 under the title of the "Estrado de Ferro Dom Pedro I." It was not until 1855, however, that Cochrane, who held a concession covering a route similar to the one projected by the Dom Pedro I line, was prevailed upon (by means of a monetary consideration) to withdraw from the field. On March 29, 1858, the first section, 32 miles in length, was opened for traffic, the company at that time having 10 locomotives, 40 passenger cars, and 100 freight cars. Gross receipts for the first year totaled 302,279 milreis and operating expenses 205,590 milreis. Although there was an increase in gross earnings to 729,197 milreis the year following, net earnings increased only about 14,000 milreis and the company was compelled to contract through the firm of N. M. Rothschild & Sons a loan for £1,425,000 to meet current expenses and to continue the line for an additional 28½ miles. This section of the line presented immense engineering difficulties. There is on this section the Tunnel Grande, 7,336 feet in length, the completion of which took seven years and

virtually bankrupted the company. In 1866 the then hopelessly insolvent company was taken over by the Government and the line has since been operated as a Federal railway. Under Government ownership the line was steadily extended, despite the fact that construction was costly because of the number of tunnels, bridges, retaining walls, cuts, and fills. The railway system as it now exists forms a network of lines extending from Rio de Janeiro to São Paulo, Bello Horizonte, and a number of other points. Excellent passenger service is maintained between various through points and there is a very heavy suburban traffic. The equipment is generally good, and fast time is made on through express trains.

The expansion of the Central Railway is shown in the following table:

Years.	Receipts.	Expenses.	Net profit or loss.	Length of lines operated.	
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Kilometers.</i>	<i>Miles.</i>
1858.....	302,279	205,590	+ 96,690	51	32
1868.....	2,819,831	1,255,514	+1,564,317	203	126
1878.....	10,022,525	5,560,205	+4,462,319	583	362
1888.....	12,593,377	6,880,810	+5,712,567	807	501
1898.....	34,106,659	31,043,580	+3,063,078	1,222	759
1908.....	29,720,625	32,182,377	-2,461,752	1,764	1,096
1909.....	31,226,524	31,262,510	- 35,986	1,769	1,099
1910.....	29,448,566	36,707,940	-7,259,374	1,789	1,112

The cost of the railway to December 31, 1910, was approximately \$80,136,700, which figure, owing to deficits on several occasions and to various improvements and minor extensions, had probably increased to \$95,000,000 in 1917. Plans were under way in 1916 to form the Central Railway of Brazil into a corporation with an approximate capitalization of \$97,000,000, to be divided into about \$58,000,000 stock and about \$39,000,000 debentures. It was stated that one-half of the shares would probably be offered for sale in the large financial centers of the United States and Europe. The Government will hold all of the debentures, but will receive no interest thereon. The following estimate is given of the finances of the railway provided it be operated on a thoroughly commercial basis (figures are in United States currency): Gross revenue (estimated), \$16,222,000; operating cost at 70 per cent, \$11,355,400; net receipts, \$4,866,600. One-half of this profit would go to the Government and one-half to the shareholders, this sum being equal to about 8 per cent on their investment for the first year of operation under this scheme.

It is planned to carry the Central Railway system northward across the Republic to Para and to build various sections in new territory.

During recent years the Central of Brazil Railway has handled annually upward of 25,000,000 passengers and a large freight tonnage consisting of coffee, lumber, sugar, iron, manganese, etc.

SÃO PAULO RAILWAY.

Probably the most successful among the railways of the Republic is the São Paulo Railway, operating a system of 5-foot 6-inch gauge extending from Santos to Jundiahy, 139 kilometers (86 miles), and

a meter-gauge line known as the Bragantina section, 108 kilometers (67 miles). The railway forms the natural means of transport to and from the sea of most of the exports and imports of the State of São Paulo, the most important in the entire Republic. The extent of the traffic during recent years is illustrated by the table that follows:

Years.	Passengers carried.	Coffee.	Other freight.
		Sacks of 60 lbs.	Tons.
1911.....	2,438,664	9,255,417	1,809,038
1912.....	3,098,493	9,501,417	2,270,217
1913.....	3,511,016	11,158,083	2,570,484
1914.....	3,253,618	9,507,350	1,844,095
1915.....	2,945,015	13,444,766	1,720,070

The São Paulo Railway's main line normally produces more revenue per mile than any railroad in the Western Hemisphere and earns annually very substantial profits. (See Appendix, p. 512.) It annually carries two-thirds of the world's coffee supply. The line was first constructed in the year 1867 and presented numerous engineering problems. There were on the original line (which still exists, though it is not very regularly used) four different stretches of track that had to be laid on a 10 per cent grade. Trains are operated up and down these grades by means of heavy wire ropes. In the year 1901 a duplication of the entire Serra or mountain section of the line was completed. This new line followed an entirely different route from the original line, its maximum grade being 8 per cent. Wherever these heavy gradients are encountered the endless-rope system is used. These rope cables will support loads of 145 tons per train, and the trains are otherwise protected against accidents by brake locomotives and other of the latest safety appliances. The railway is constructed in an admirable manner, as those who have used it will testify, and the scenery along the route is most beautiful. The passenger station and terminals at São Paulo are very substantial, and the equipment in service is of the very finest.

The outstanding securities of the São Paulo Railway and the range of quotations thereon are shown in the following table:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary stock.....	£3,000,000	£100	270	188
5 per cent non-cumulative preference stock.....	1,000,000	100	116½	83
5 per cent permanent debenture stock.....	250,000	100	118	86
5½ per cent permanent debenture stock.....	750,000	100	128	97
4 per cent permanent debenture stock.....	1,000,000	100	105	71

LEOPOLDINA RAILWAY.

This important British-controlled line, or combination of lines, totals 1,831 miles in length, and extends from Nitheroy, opposite Rio de Janeiro, northward to Friburgo, Campos, Victoria, Leopoldina, and other points in the States of Minas Geraes, Rio de

Janeiro, and Espirito Santo. Lines also run from the city of Rio de Janeiro and Maua up the mountain to Petropolis, continuing until connections are made with the main system. The line follows the winding valley of the Paranhya River for a distance and then strikes across a series of abrupt mountain ranges. There are four of these mountain ranges, and in order to surmount them many spectacular engineering feats had to be performed. The maximum grade on the main system is 8 per cent and on the Petropolis section 15 per cent.

There follows a statement of the earnings and profits of the Leopoldina Railway, covering a period of three years, 1914 to 1916:

Items.	1914	1915	1916	1917
Gross receipts	£1,549,866	£1,537,700	£1,319,657	£1,580,241
Working expenses	1,086,961	1,034,851	898,425	1,089,646
Net receipts	462,905	502,849	421,232	490,595
Brought forward	138,003	138,843	145,247	152,235
Total net income (including other income)	624,258	644,007	597,189	665,035
Debenture interest	229,996	230,155	230,155	234,154
Reserves	30,218	42,404	58,305	34,300
Preference dividends (5½ per cent)	156,494	156,494	156,494	156,494
Ordinary dividends	a 68,707	a 68,707	None.	103,060
Balance carried forward	138,543	146,247	152,235	137,027

a 1 per cent.

The dividend rate on the ordinary shares for the year 1917 was 1½ per cent.

Gross receipts for 1913 were £1,870,371; 1912, £1,688,926; 1911, £1,365,919; 1910, £1,318,116; 1909, £1,215,083; 1908, £106,617; and 1907, £1,254,557. Dividend payments on the ordinary shares during 1913 and 1912 were at the rate of 4 per cent per annum; 1911, 2 per cent; 1910, 3½ per cent; 1909, 3¼ per cent; 1908, 3½ per cent; 1907, 4½ per cent; 1905 and 1906, 4 per cent each. A portion of the system reverts to the Government in 1964 and 1999. The company receives small guaranties on sections of the lines, these guaranties expiring in 1918 and 1919.

The Companhia do Porto de Victoria is controlled by the Leopoldina Railway, which also owns a one-half interest in the shares of the Leopoldina Terminal Co. (see a later paragraph), guaranteeing that company's 5 per cent first debentures, to the amount of £1,250,000.

The capitalization and value of the securities of the Leopoldina Railway are as follows:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary shares	£6,870,690	£100	78½	39
Preference shares, 5½ per cent	2,845,340	10	11½	8
4 per cent debenture stock	4,495,300	100	97	66
5 per cent terminable debentures	1,000,000	100	103	92½
Total	15,211,330			

The present mileage, 1,831, compares with 1,651 miles operated in 1912, 1,542 miles in 1908, 1,423 miles in 1905, and 1,412 miles in 1903. Despite the necessarily heavy grades encountered, the territory traversed by the railway is highly productive, and revenues from traffic, once normal conditions are restored, seem destined to grow considerably.

LEOPOLDINA TERMINAL CO.

In the year 1911 the Leopoldina Terminal Co. was formed to acquire shares of the Companhia Cantareira e Viação Fluminense, owning and operating a fleet of ferryboats plying between Rio de Janeiro and Nictheroy (connecting with trains of the Leopoldina Railway), the entire electric tramway system of the city of Nictheroy, 73 kilometers (45 miles), and warehouses in Rio de Janeiro. The capitalization of the Leopoldina Terminal Co. is £1,250,000, of which £625,001 is held by the Leopoldina Railway; also £1,250,000 5 per cent debentures, guaranteed by the railway company. Before the outbreak of the war in Europe 1½ per cent per annum was paid on the stock. At present no dividend is being paid. The stock was quoted in January, 1918, at 5s., as compared with approximately 10s. in 1914. The debentures were quoted at 82 in January, 1918, the high price since their issue having been 104½.

BRAZIL RAILWAY.

The Brazil Railway was incorporated in Maine, U. S. A., in 1906, for the purpose mainly of acquiring various railways and concessions for railways in southern Brazil, with the view of connecting them into one comprehensive system and joining them at the international borders with Uruguay, Argentina, and Paraguay. The plan was subsequently enlarged to cover the acquisition of certain ports connecting with the railway systems and of industries likely to be operated with profit and to give traffic to the railways.

The Brazil Railway first acquired control of the four railways which at present make up the system that it operates directly—the Sorocabana, São Paulo-Rio Grande, Parana, and Auxiliaire Railways. The company also acquired a half interest in the Madeira-Mamore Railway, the other half being taken by the Port of Para Co. (see p. 156); the Brazil Railway assumed the principal burden of financing the construction of this enterprise.

Through subsidiaries, the Southern Brazil Lumber & Colonization Co. and the Brazil Land, Cattle & Packing Co., large tracts of land were purchased, and at the same time control was acquired over the extensive land grants of the São Paulo-Rio Grande Railway. This latter company obtained, at the time of being taken over, the voting control of the Paraguay Central Railway.

The Brazil Railway, at about the same time, acquired large interests in two Brazilian railway companies, the Paulista and Mogyana companies, and then obtained control of the Port of Rio Grande do Sul and the Port of Rio de Janeiro, through the ownership of a large majority of the shares of the two French companies that had acquired the concessions for those ports. Sites for the construction of hotels in Rio de Janeiro and São Paulo were purchased, and the Guaruja Hotel near Santos was acquired and enlarged.

Lumber mills were erected by the lumber company, and the cattle company began breeding cattle on an extensive scale, importing thoroughbreds from America to improve the native cattle. The company then acquired large share interests in five different Uruguayan railway companies and in the Antofagasta (Chile) & Bolivia Railway.

The construction of a cold-storage plant at Rio de Janeiro was also begun, and the cattle company, through a subsidiary, the Continental Products Co., undertook the construction of a large packing plant at Osasco, near São Paulo. By the control of its various subsidiaries the Brazil Railway had committed itself to an expensive program of railway construction in Brazil, Uruguay, and Bolivia, and many of its industrial enterprises were in a formative period and required considerable sums of money to bring them to a point of production. This was the state of affairs at the time of the outbreak of the Balkan war in 1912, when money became difficult to obtain, and this rapidly growing concern was suddenly confronted with a shortage of funds.

At the same time the world's financial crisis made itself felt, particularly in Brazil, and the earnings of the producing companies were considerably curtailed. Much work had been done by the various subsidiaries for the account of the Brazilian Government, and large sums of money were unpaid. The financial difficulties of the Brazilian Government seemed about to be finally solved by means of an international loan, which would have enabled these debts to be paid and would have given the Brazil Railway some measure of relief, when the European war broke out and the company found itself unable to meet its obligations.

The principal source of revenue for the maintenance of the Government is its customs duties. As a result of the war, imports were more than cut in half and the Government found itself unable to meet its obligations in cash. The fall in exchange dealt the revenue of the company a severe blow, and it was decided that the best interests of security holders would be served by the appointment of a receiver.

The Brazil Railway owns about 40 per cent of the shares of the Paulista Co. and about 26 per cent of the shares of the Mogyana Co., valued in 1915 at £3,066,760 and £1,542,700. Both of these companies (which see) are under Brazilian control and management and are excellent, conservatively operated properties. The Paulista Railway's bond issue is said to amount to less than 20 per cent of the value of the property, while the Mogyana property is capitalized at a very reasonable figure.

The Sorocabana Railway has a total length of 1,360 kilometers (864 miles) and is spread over a greater area than either the Paulista or Mogyana railways. Practically its entire preferred and common stock is owned by the Brazil Railway. The Sorocabana Railway traverses a growing and extremely rich part of Brazil, making important traffic connections with other companies, and is opening up new, fertile territory. In spite of certain faults of location and the fact that light rail and ballast are used on sections of the line, the Sorocabana Railway is a good property with good earning power and great possibilities. Future construction will probably be limited to branches designed to reach important traffic-developing points and to develop the country within a reasonable distance of the main line.

The Sorocabana Railway holds a 60-year lease of the property, on a profit-sharing basis with its owner, the State of São Paulo. It has a fairly large bonded debt, partly represented by capital raised by the State for its construction and partly bonds, etc., issued by the railway company. The total stock issue of the company is only 40 per cent of that of the Paulista and Mogyana railways.

The railway holds investments in other companies, including important interests in the Paulista Railway, the *Compagnie Auxiliaire*, the Port of Rio de Janeiro, etc.

The São Paulo-Rio Grande Railway covers a total length of 1,372 kilometers (853 miles). It goes through a sparsely settled territory, the soil of which is not equal to some sections of southern Brazil. During the war-period this line has had difficulty in meeting operating expenses, but it is expected that the Southern Brazil Lumber Co., which is located along the line, will in time develop sufficient traffic to place it on a profitable basis. The bonds of this railway company are guaranteed as to interest for 30 years by the Brazilian Government. Following the outbreak of the war certain of the payments of this guaranty were met by the payment of funding bonds instead of cash. It is generally expected that development will be slow throughout the thinly settled territory tributary to the railway, but it is anticipated that in time substantial progress will be made and settlers will be attracted by low land values and the opportunities offered.

The Parana Railway, operated by the Brazil Railway, has a total length of 416 kilometers (258 miles) and covers a somewhat more promising territory than the São Paulo-Rio Grande Railway. Overhead charges are high, and it has been found difficult to earn a profit. Large sums have been expended on improvements, considerable sections of the line having been almost entirely rebuilt. Negotiations were under way in 1916 leading to a reduction of the terms of the lease by the Government to the company.

The Brazil Railway owns the capital stock of the Norte do Parana Railway, operating a short line from Curitiba northward, which handles a light though growing traffic. This line formerly was the property of the Government.

The Thereza-Christina Railway, another line of no special importance, leased by the São Paulo-Rio Grande Railway, is operated without profit to the Brazil Railway. In the receiver's report concerning the condition of the various Brazil Railway enterprises, it was advocated that this concession be forfeited.

The Brazil Railway owns a majority of the common and preferred stock of the *Compagnie Auxiliaire de Chemins de Fer au Brésil* (incorporated in Belgium and constructed by Belgian interests), which has an exclusive Federal concession for operation in the State of Rio Grande do Sul. The line runs through a magnificent territory with great future prospects. Cattle, cereals, and various temperate-zone products may readily be raised, and the railway has for years shown a consistent, steady growth in earnings, this increase averaging 10 per cent per annum. The railway, however, is in need of additional capital, having been lightly built and only partially ballasted, the bridges being so lightly constructed that the economical operation of heavy trains is impossible. The European war

checked the development of this railway to a considerable extent, but the opening in 1915 of the Port Works at Rio Grande do Sul is certain to give a stimulus to the earnings of the road in the future. The gross receipts per kilometer, although they have increased from year to year, as stated, are still far below those of most of the railways operating in such States as São Paulo and Rio de Janeiro. The finances of the company are somewhat pyramided, being mostly bonds and but little stock, but with a few years of increased earnings should realize substantial profits, despite this disadvantage.

The Madeira-Mamore Railway (see p. 155), which, as stated, is controlled jointly by the Brazil Railway and the Port of Para Co., is 226 miles in length. The property is in receivers' hands.

The Uruguay railway companies in which the Brazil Railway has acquired an interest are discussed in the chapter devoted to Uruguay. As will be there indicated, most of them are small and, although they hold considerable promise for future development, are not likely to return an immediate profit to the Brazil Railway. The Central of Uruguay Railway is by far the most important of these lines, forming a continuous route from Montevideo to the Brazilian frontier.

The Brazil Railway acquired in 1912 a considerable interest in the shares of the Antofagasta & Bolivia Railway, most of which was resold at a considerable loss (see chapters on Chile and Bolivia). A portion of the stock disposed of by the receiver of the Brazil Railway has been used as collateral for a loan of £500,000 that matured February, 1915.

The Brazil Railway holds a majority of the shares of the Southern São Paulo Railway, which runs from Santos along the coast in a southerly direction. The line is guaranteed 6 per cent per annum on the cost of construction, payable in paper, which guaranty was stated in 1915 to be insufficient to meet all expenses of the company.

Another property under control of the Brazil Railway is the Paraguay Central Railway, which in turn controls the Asuncion Tramway, Light & Power Co. (see chapter on Paraguay for information concerning these companies). Both the railway and the tramway company are in financial difficulties and are operated by receivers. Advances made by the Brazil Railway to the tramway company are secured by mortgage.

The Brazil Railway owns a number of the shares of the Brazil Great Southern Railway (which see), a line paralleling the Uruguay River in the State of Rio Grande do Sul. This company is in financial difficulties.

Considerable investments have been made in surveys of railroads in Bolivia, which lines were found to be too expensive to construct.

PORT OF RIO DE JANEIRO—PORT OF RIO GRANDE DO SUL.

The Port of Rio de Janeiro, controlled as stated by the Sorocabana Railway, has issued bonds to the amount of 12,500,000 francs and owns valuable property that could readily be disposed of to cover more than the face value of the bonds. A Brazilian company, the Companhia Docas do Rio de Janeiro, works the port under a management contract, guaranteeing the interest on the bonds and a dividend of 6 per cent on the shares of the Port of Rio de Janeiro.

Although the receipts of the port have fallen off during the war, profits have been realized, these profits having been largely used to finance the construction of a cold-storage plant at Rio. A total of 15,931 out of 20,000 preferred and ordinary shares of the port are owned.

The Compagnie Française du Port de Rio Grande do Sul owns a contract for the construction of port works at Rio Grande do Sul, the building of jetties, etc. The work has been largely finished. The Government has given a guaranty of interest on the recognized capital and pays the company the cost of the jetties and dredging. The port company owns the tramway, electric-light, and power business in the city of Rio Grande do Sul, which will probably develop profitably. A large tract of land suitable for industrial enterprise is also owned.

SOUTHERN BRAZIL LUMBER & COLONIZATION CO.

As has been stated, the Brazil Railway owns all of the stocks and bonds of the Southern Brazil Lumber & Colonization Co., which owns large areas of timberlands and mills in the States of Parana and Santa Catharina. The principal mill is located at Tres-Barras, on a branch of the São Paulo-Rio Grande Railway running to the port of São Francisco. The mill has a capacity of 40,000,000 feet a year. It was closed down during a portion of the war period. The company owns a total of 566,475 acres of land, estimated to contain 5,000,000,000 feet of standing timber, which would run the mill at full capacity for a century. The trees are mostly pine of a good quality, and under normal conditions a ready market should be found locally and in Uruguay and Argentina.

BRAZIL LAND, CATTLE & PACKING CO.

The Brazil Railway owns all of the shares and about 90 per cent of the bonds of the Brazil Land, Cattle & Packing Co. This company holds a large area of land, which has been partially stocked with cattle. At the time of receivership this concern was in the process of formation, but the high price received for its products has aided it considerably. Inasmuch as Brazil's future as a cattle country is assured, the outlook for this company may be said to be extremely bright. The Land & Cattle Co. owns 77½ per cent of the shares of the Continental Products Co., the remainder of the shares being held by Wilson & Co., of the United States. The plant of the Products Co. is located near São Paulo. This plant is expected to prove highly profitable.

MILEAGE OF BRAZIL RAILWAY AND SUBSIDIARIES.

The mileage of the lines operated, leased, and controlled by the Brazil Railway is as follows:

Railways directly operated:	Mileage.
Cie. Auxiliaire de Chemins de Fer au Brésil.....	1, 381. 8
Sorocabana Railway.....	946. 0
São Paulo-Rio Grande Railway.....	779. 1
Parana Railway.....	252. 3
Thereza Christina Railway.....	72. 2
North Parana Railway.....	26. 9
Total.....	<u>3, 458. 3</u>

Railways controlled directly or jointly or in which the Brazil Railway is interested:

Paulista Railway	226. 0
Mogyana Railway & Navigation Co.....	1, 180. 0
Madeira-Mamore Railway.....	748. 0
Total.....	2, 154. 0
All mileage	5, 612. 3

The above mileage does not include subsidiaries in Uruguay, Paraguay, and Bolivia.

FINANCES OF BRAZIL RAILWAY.

The capitalization of the Brazil Railway, prior to the receivership, was as follows: Six per cent preferred shares of \$100, of which 150,375 are cumulative nonparticipating and 49,625 noncumulative participating, \$20,000,000; common shares, par \$100, \$32,000,000; total stock capitalization outstanding, \$52,000,000. The noncumulative participating shares are entitled to rank parri passu with the common stock for dividends in excess of 6 per cent per annum. Full dividends of 6 per cent per annum were paid on all preferred shares during 1911, 1912, and 1913. The authorized total of all stock issuable was fixed at \$60,000,000, of which \$40,000,000 was to have been common stock. The shares are widely distributed in France, Belgium, and Great Britain, with a few in the United States and Canada. The range of quotations on the various shares, as above, has been extremely wide, as will be shown in a subsequent paragraph.

The bonded debt of the company prior to receivership was as follows (parent company):

Securities.	Authorized.	Issued to public.
4½ per cent first-mortgage 60-year bonds..... £	15, 000, 000	10, 018, 877
4½ per cent French franc series..... francs	86, 500, 000	86, 500, 000
5 per cent 50-year debentures, due 1957..... dollars	5, 000, 000	1, 510, 500
6 per cent convertible debentures..... £	2, 000, 000	2, 000, 000
6 per cent bonds, 1913-1923..... francs	150, 000, 000	105, 000, 000

The high and low prices since January, 1911, and the price in January, 1918, of the securities of the Brazil Railway on the London Stock Exchange are shown in the following table:

Securities.	Prices since January, 1911.		Price January, 1918.
	High.	Low.	
Common stock.....	121½	4½	5
Preferred (noncumulative).....	130½	6	7
Preferred (cumulative).....	97	10	11
4½ per cent bonds.....	96	22	30
6 per cent convertible debentures.....	97½	20	31½

In August, 1917, a plan of reorganization was announced. The capitalization at that time consisted of \$20,000,000 preferred and

\$32,000,000 common stock, as per table; £12,842,074 4½ per cent first mortgage 60-year bonds; 85,742,000 francs of the 4½ per cent French franc loan; £2,000,000 5 per cent convertible debentures; 146,031,500 francs of the 6 per cent 1913-1923 loan; and \$1,467,100 of the 5 per cent 50-year debentures. The unfunded debt at the time of reorganization was estimated at \$10,436,855. In order to obtain new capital it was decided to authorize 80,000,000 francs of new bonds to have priority over outstanding issues and to issue at once 21,060,000 francs bonds, bearing interest at 6 per cent per annum. All the old bonds of the company are to be converted into income bonds bearing the former rates of interest plus ½ per cent extra. The interest payments are to be noncumulative until the net income applicable for any issue shall have been equal to one-half of the interest on that issue for the period of five years. When the earnings shall have proved sufficient to take care of the above requirements the first half of the interest shall become cumulative, and when the interest for five consecutive years shall have been sufficient to pay the entire interest on the issue, then the full interest shall thereafter become wholly cumulative. The date of maturity on the 1913-1923 bonds and on the convertible debentures has been extended until July 1, 1969. The price realized from the sale of the 21,060,000 francs new bonds previously referred to is 95 per cent, and the maturity date of the issue has been fixed at 1942.

The plan as proposed would probably not have been put into effect had it not been for existing war conditions. The cash received by the sale of bonds amounting to somewhat less than \$4,000,000 will doubtless take care of immediate requirements, and with the gradual improvement of the exchange situation in Brazil and the larger earnings realized by the company and its subsidiaries there are excellent prospects that better days are at hand. The cash requirements as estimated by the receiver were £2,400,000, half in cash and half over a period of six years.

The gross earnings of the Brazil Railway during the years 1911, 1912, and 1913 amounted to \$11,714,019, \$13,057,690, and \$14,305,665, respectively; net earnings amounted during the same period to \$5,103,308, \$5,573,795, and \$5,255,000, respectively. Subsequent receipts were considerably smaller. These were the earnings of lines directly operated.

The combined total gross earnings of the Mogyana and Paulista railways for 1913 were \$19,233,000, as compared with \$18,449,857 in 1912; net earnings for 1913 and 1912 amounted to \$8,725,000 and \$9,213,543, respectively. The main line of the Paulista is broad-gauge, connecting with the São Paulo Railway at Jundiahy, its terminus, and running in a northwesterly direction into a rich coffee territory. The branches are of meter gauge. The company has 92,000,000 milreis stock outstanding and pays annually from 10 to 12 per cent. Approximately £1,800,000 debentures (5 per cent) are also outstanding. About 40 per cent of the shares are held by the Brazil Railway.

The Mogyana Railway & Navigation Co. has outstanding 80,000,000 milreis stock, of which about 26 per cent is held by the Brazil Railway. Dividends of 8 to 10 per cent are usually paid, and the stock, which is listed on the São Paulo Stock Exchange, was quoted in May, 1917, at 240 milreis per 200-milreis share. The financial

condition of the company is excellent. Its funded debt consists of £2,500,000 5 per cent sterling bonds "Sul Mineira Extension" due 1969 and £1,500,000 first-mortgage 5 per cent bonds, issued February, 1914, at 96 per cent. Both issues were quoted in January, 1918, at 80 per cent.

The Mogyana Railway & Navigation Co.'s line extends from Campinas, a station on the Sorocabana and Paulista Railways, northward through the States of São Paulo and Minas Geraes to Araquary, near the Goyaz frontier.

The following table shows the principal securities, leases, operating contracts, and land grants owned by the Brazil Railway and its subsidiaries, December 31, 1912:

47,308 shares of 500 francs each (out of 50,000) of the São Paulo-Rio Grande Railway Co.

20,000 preferred shares of \$100 each (the whole) of the Sorocabana Railway Co.

79,360 ordinary shares of \$100 each (out of 80,000) of the Sorocabana Railway Co.

£825,000 4½ per cent first debentures of the Sorocabana Railway Co.

46,635 preferred, dividend and jouissance shares (out of 82,000) of the Compagnie Auxiliaire de Chemins de Fer au Brésil.

36,011 ordinary shares (out of 72,000) of the Compagnie des Chemins de Fer Sud-ouest-Bresiliens, which owns 13,099 shares of the Compagnie Auxiliaire de Chemins de Fer au Brésil.

£900,000 6 per cent first mortgage 60-year bonds of the Madeira-Mamore Railway Co.

5,000 preferred shares of \$100 each (out of 10,000) of the Madeira-Mamore Railway Co.

50,000 ordinary shares of \$100 each (out of 100,000) of the Madeira-Mamore Railway Co.

157,783 shares of 200 milreis each, that is, about \$64 (out of 400,000), of the Companhia Paulista de Vias Ferreas e Fluvias.

107,093 shares of 200 milreis each, that is, about \$64 (out of 400,000), of the Companhia Mogyana de Estradas de Ferro e Navegação.

20,000 preferred and 25,000 ordinary shares of \$100 each (the whole of the issued share capital) of the Southern Brazil Lumber & Colonization Co.

£933,000 5 per cent first-mortgage bonds of the Southern Brazil Lumber & Colonization Co.

17,626 preferred and 38,986 ordinary shares of 500 francs each and 18,805 founders' shares of the Compagnie Française du Port de Rio Grande do Sul.

9,400 ordinary shares of 500 francs each and 10,600 "parts bénéficiaires" of the Société Générale de Construction.

15,931 preferred and ordinary shares (out of 20,000) of 500 francs each of the Compagnie du Port de Rio de Janeiro.

50,000 shares of 100 milreis each (the whole) of the Companhia dos Grandes Hotéis de São Paulo.

2,000 shares of 500 francs each (the whole) of the Companhia Estrada de Ferro Norte do Parana.

228,810 shares of \$100 each (out of 250,000) of the Brazil Land, Cattle & Packing Co.

£1,437,500 5 per cent first-mortgage bonds of the Brazil Land, Cattle & Packing Co.

150,000 common shares of \$100 each (the whole) of the Uruguay Railway Co.

£1,150,000 4½ per cent first-mortgage bonds of the Uruguay Railway Co.

150,000 shares of \$100 each (the whole) of the Bolivia Development & Colonization Co.

Contract for the operation of the Sorocabana Railway.

Contract for the operation of the São Paulo-Rio Grande Railway, including the Parana and Thereza-Christina Railways.

Contract for the operation of the system of the Compagnie Auxiliaire de Chemins de Fer au Brésil.

Lands granted to the São Paulo-Rio Grande Railway Co., which, when surveys are completed, should comprise about 6,000,000 acres.

MADEIRA-MAMORE RAILWAY.

The Madeira-Mamore Railway passes around several series of rapids on the Madeira River and connects upward of 2,000 miles of river on the lower Amazon with an additional 2,000 miles of navigable waterways in the several important tributaries above the falls. The Brazilian Government undertook to build this line and gave the company a construction contract estimated to cover the cost. The Government of Bolivia entered into a further contract to assist the company to construct an additional section of line (which has not yet been built), in connection with which the company was to receive an important land grant in Bolivia.

The Madeira-Mamore Railway is probably the most isolated railway in the world. As stated, it affords a means of routing traffic around a chain of dangerous rapids, which prevent navigation through portions of the Madeira, Mamore, and Beni Rivers. The route followed by the railway was surveyed a number of years ago by Col. George Earl Church, an eminent American engineer, and a party of followers, a number of whom lost their lives as a result of the climate, the heat and the swampy nature of the country traversed causing great hardships. Following Col. Church's survey, numerous attempts were made to open this possible trade route. First a canal was authorized, but as this scheme did not seem feasible it was decided that a railway should be built. A company was launched in 1872 and a contract was let to the Public Works Construction Co. The latter company started work on the enterprise but was shortly compelled to give it up. In 1877 the task was again attempted, this time by P. T. Collins, of Philadelphia, who succeeded in completing about 20 miles of line and locating 40 miles additional. The difficulties of the undertaking proved too great, however, and the work had to be abandoned, most of the equipment brought into service being left in the swamps.

In the year 1903 the treaty of Petropolis between Brazil and Bolivia imposed upon the former, in exchange for territories granted by Bolivia, a guaranty that the railway would be constructed. Brazil subsequently let a contract to Joachim Catranby, who in turn transferred it to the present owners of the line.

The Madeira-Mamore Railway has its terminus at Puerto Velho, from which point it extends southwestward and southward through the forest and jungle following the route of the river. The railway en route crosses a number of small villages, and towns have sprung up. The railway passes opposite Villa Bella, Bolivia, near which town the Mamore and Beni Rivers unite to form the Madeira. Each of these rivers has its sources in the Bolivian Andes—the former in the Department of La Paz and the latter in Cochabamba. The present southern terminus of the line is at Guajara Miriam, on the Mamore River, beyond which point the river is navigable for some hundreds of miles. From Guajara Miriam the railway has been surveyed to Riberalta on the Beni River, a distance of approximately 62 miles. This extension, if completed, will open a trade route of importance to eastern Bolivia. At some future date it is expected that a railway authorized by the Bolivian Government (probably an extension of the Yungas Railway, now building) will connect the plateau cities of La Paz, Oruro, etc., and will provide an eastern outlet for the growing trade of the highlands.

The climate of the district traversed by the railway is particularly unfavorable, and the 226 miles of line were built under difficulties that seemed almost unsurmountable. The cost greatly exceeded all estimates. The rubber industry, upon which the property depended for its initial traffic, is undergoing a severe depression (although conditions are slightly improving) and only a fraction of the amount of rubber expected is finding its way over the line, with the result that the railway in 1915 was only just earning its operating expenses. It is, as indicated, an important strategic line, and the development of even one important industry, such as hardwoods or some mineral deposit, would have an important effect on the earnings of the line and the value of its securities.

The capitalization of the company consists of \$1,000,000 preferred and \$10,000,000 common stock (this being held one-half by the Brazil Railway and one-half by the Port of Para Co.) and of the following bonds: £1,400,000 6 per cent 60-year first-mortgage bonds guaranteed principal and interest by the Port of Para Co. and secured on the lease of the railway and by a first charge on certain specific property; £1,600,000 5½ per cent 60-year first-mortgage bonds, secured by same property as the 6 per cent bonds, but guaranteed principal and interest by the Brazil Railway.

The lease that the Madeira-Mamore Railway holds from the Government for the operation of the railway was to be for 60 years from January 1, 1912, for which consideration the railway would pay to the Government 5 per cent of the gross operating revenue until 1931, 10 per cent from 1932 to 1951, and 20 per cent thereafter until the expiration of the lease; also, if more than 12 per cent of the recognized capital is earned in any year one-fifth of the balance would accrue to the Government. The high prices for the issues since 1911 were 105½ for the 6 per cent bonds and 96 for the 5½ per cent bonds, the low prices being 27½ and 26½, and the price in January, 1918, approximately 35 and 34½, respectively.

Gross earnings of the property for 1911, 1912, and 1913 totaled \$706,905, \$1,552,056, and \$1,701,335, respectively. Net earnings for 1912 and 1913 were \$579,395 and \$812,335. No later figures are available.

Concessions held by the railway company permit the management to develop the agricultural and mineral resources of more than 1,000 square miles of territory in the State of Matto Grosso (this concession expires in 1936), and the company may also purchase at a nominal sum a vast area of lands in Bolivia.

GREAT WESTERN OF BRAZIL RAILWAY.

This network of railway lines is under British control and management. The port of Pernambuco is the central terminus, and lines extend northward along the coast and also into the interior, reaching Natal, Parahyba, Jaragua, etc. The States of Pernambuco, Alagoas, Parahyba, and Rio Grande do Norte are traversed. In the normal year 1912, 2,674,351 passengers were carried, as against 2,341,511 during 1911. The freight handled consisted of 443,416 tons of sugar, 111,552 tons of cotton and cotton seed, 97,521 tons of stone, 87,316 tons of firewood and timber, 33,943 tons of mandioca, 68,697 tons of miscellaneous freight, and 71,658 head of cattle. The mileage totals 1,010, a large portion of which is leased from the Brazilian Govern-

ment for 60 years from 1901. The capitalization of the company consists of the following issues:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary stock.....	£1,250,000	£10	12	5
6 per cent preference.....	1,000,000	10	12½	7½
6 per cent debentures (permanent).....	306,250	100	139	99
4 per cent debentures.....	1,615,000	100	97	67
Total.....	4,171,250			
			50 per cent.	71 per cent.

Gross receipts of the railway during the past several years have been as follows: 1911, £644,888; 1912, £684,985; 1913, £759,000; 1914, £641,600; 1915, £515,400; 1916, £581,422; 1917, £736,914. During this period the mileage in operation has increased from 934 to 1,010. In 1917 the operating expenses were £507,602, as against £407,247 in 1916, and the net receipts were £229,312, as against £174,175 in 1916. Adding other income and deducting interest, sinking fund, reserves, etc., the amount to be carried forward at the end of 1917 was £20,577. The operating ratio was 68.9 per cent. For the 30 weeks ended July 27, 1918, gross receipts totaled £486,900, an increase of £113,500 as compared with the similar period in 1917. During a normal year, 1913, the net receipts of the railway were £260,093, as compared with fixed charges to the amount of less than £100,000.

Dividend payments on both classes of stock amounted to 6 per cent per annum for a number of years to and including 1913. In 1914 and later years no dividends were paid on the ordinary stock. In November, 1914, dividends were suspended on the preference stock and had not been resumed up to December, 1917.

BRAZIL NORTHEASTERN RAILWAY.

This company operates approximately 472 miles of railway in the State of Ceara, its principal terminus being the port of Fortaleza or Ceara. Further lines are partly constructed; the work is being carried on through the agency of the Brazilian Government, having been assigned to the South American Construction Co. The State of Ceara is about the size of Illinois and contains approximately 1,000,000 inhabitants. Cotton is the principal commodity handled. The number of passengers handled annually is about 300,000. The railway is leased by the Government to the company until 1970, but may be expropriated in 1940 under certain conditions and upon terms not unfavorable to the company. The capitalization of the company consists of £350,000 £1 shares, £70,000 5 per cent debenture stock (prior lien), and £341,215 6 per cent first debenture stock (original issue £350,000), the last-named issue being redeemable at 110 on or before February 1, 1933, or by purchase of £4,000 or more per annum up to 110 for sinking fund.

At a meeting of debenture holders held in January, 1915, it was decided that the coupon due August, 1914, and subsequent coupons should not be paid until commencing not more than six months after the close of the European war. The payments on the prior lien 5 per

cent bonds were also postponed. These bonds were to have matured in 1916. The 6 per cent first debenture stock is listed in London and sold as high as 102 during the past six years. In 1915, the quotation for the issue was 36, and no later price has been recorded.

The highest net receipts earned by the railway totaled £50,886, these results being accomplished in the year 1912. Gross receipts during 1911, 1912, and 1913, respectively, were £157,038, £179,091, and £188,400. Fixed charges average approximately £40,000 per annum.

NORTHWESTERN OF BRAZIL RAILWAY.

Most of the railway mileage included in the above table has been previously described in this chapter. In addition to these lines, the Northwestern of Brazil Railway, 935 kilometers (581 miles), the outgrowth of a rather pretentious scheme, begins at Bauru on the Brazil Railway system and follows the valley of the Tiete River to Itapura. The line crosses the State of Matto Grosso and reaches the Bolivian frontier, opening up a vast tract of virgin country for the immigration that will probably follow the conclusion of the European war. The traffic on this railway has not yet developed large proportions, but its future will doubtless be more successful. The 20,000,000 milreis shares and two issues of 5 per cent debentures, 40,000,000 and 17,500,000, are listed on the Rio de Janeiro Stock Exchange. A number of the debentures are held in France. The railway will eventually develop considerable traffic from the upper portion of the Paraguay River and from eastern Bolivia. The line may eventually connect with a railway projected to run from Puerto Suarez, Bolivia, to connect with the Antofagasta & Bolivia Railway at Cochabamba or Potosi. The construction of the Bolivian enterprise, however, will probably be long delayed. Bauru, the eastern terminus of this railway, is located on a branch of the Paulista Railway, and also on a line operated by the Brazil Railway as owner of the Sorocabana Railway.

BRAZIL GREAT SOUTHERN RAILWAY AND EXTENSIONS.

The Brazil Great Southern Railway operates 110 miles of railway in the State of Rio Grande do Sul, the terminals being located at Quarahim, on the frontier with Uruguay, and at Itaqui (see Brazil Great Southern Railway Extensions (Ltd.) concerning the operations of an extension from Itaqui to São Borja, 77 miles). A company known as the Quarahim Bridge Co. (see a later paragraph, as well as chapter on Uruguay) operates a bridge between the southern terminus of the Brazil Great Southern Railway and the Northwestern Railway of Uruguay's terminus in the Republic of Uruguay. The bridge company is controlled jointly by the two railway companies.

During a period of 26 years there has been no dividend payment on either class of the company's stock, and upward of 154 per cent back dividends remain due on the 7 per cent cumulative preference shares, of which £225,000 are outstanding. There are also outstanding: (1) £125,000 deferred shares, £84,700 first-charge 6 per cent mortgage debentures, the interest on which has been in arrears since February 1, 1914 (the original issue of this loan was £250,000); (2) £94,969 6 per cent mortgage debentures that matured 1911 and were extended until November 19, 1918, on payment to the bondholders of £2 10s. per bond (interest has been in default on these debentures

since February, 1914); (3) 6 per cent permanent debenture stock, in default since January, 1914; (4) 7 per cent flood loan, to the amount of £43,000, the interest on which is in default since April 1, 1913.

A receiver was appointed for the company in February, 1914. Most of the deferred shares were held at the time of receivership in the interests of the Brazil Railway.

The gross earnings of the railway for 1916 totaled £23,664, an amount not equal to operating expenses.

The 6 per cent mortgage debentures sold in January, 1918, at 28, this comparing with 104, the high price since 1911. The 6 per cent debenture stock was quoted 20-24 January, 1918 (high since 1911, 103 per cent).

The Brazil Great Southern Railway Extensions (Ltd.), of which mention has been made, operates an extension of the Brazil Great Southern Railway's line from Itaquí to São Borja, 77 miles. The concession is for 60 years from 1910, the line reverting to the Brazilian Government at the end of this period. The authorized capitalization is £100,000, of which £25,007 is outstanding. There are also £43,700 6 per cent debentures outstanding (£100,000 authorized), of which £20,000 are held by the Brazil Great Southern Railway. Gross receipts in 1914 amounted to 97,011 milreis, in 1915 to 118,950 milreis, and in 1916 to a somewhat larger sum. The outstanding shares of this company are presumably held by the Brazil Great Southern Railway, to whom they were originally transferred.

QUARAHIM INTERNATIONAL BRIDGE CO.

The Quarahim International Bridge Co., the £10,000 shares of which are held by the Brazil Great Southern Railway and the Northwestern of Uruguay Railway, has constructed an international bridge for interchange of traffic between the two lines. The bridge is 700 yards in length. The debt of this company consists of £100,000 5 per cent sinking-fund debentures, to be redeemed through a sinking fund by 1972. The total amount of this issue authorized is £125,000, and it bears the joint guaranty as to principal and interest of the two companies owning the stock. The debentures were originally issued in 1912 at 97½ per cent. Interest is payable semiannually in March and September, and the sinking fund, which commences operation in 1920, will acquire bonds up to par. In January, 1918, the price was about 70 per cent.

STATE-OWNED RAILWAYS IN BAHIA.

Under date of July 19, 1917, Consul Edward Higgins reports as follows concerning State-owned railways in Bahia:

The State-owned Nazareth Railway is in a very prosperous condition. The revenues, expenses, and profits for the past two years follow: Revenues—1915, \$268,694, and 1916, \$333,508; expenses—1915, \$193,337, and 1916, \$260,043; profits—1915, \$75,357, and 1916, \$73,465.

The extension of the line from Jaguaquara to Jequié, in the center of the State, is well advanced, and part of it may be opened before the end of 1917. The starting point of this railway is the town of Nazareth, on the Jaguaripe River, which can be reached only by small steamers, and the goods transported on the railway are subjected to considerable handling before they arrive at the port of Bahia. To obviate this the State government has contracted for the construction of a branch line connecting Nazareth with Salinas da Margarida or any other suitable place on the coast near Bahia City.

The Santo Amaro Railway serves the best sugar district of the State. The accompanying figures give a good idea of its condition: Revenues—1915, \$91,097, and 1916, \$119,549; expenses—1915, \$79,699, and 1916, \$90,743; profits—1915, \$11,398, and 1916, \$28,806.

This railroad needs rolling stock and locomotives. In 1916 the State bought 15 ballast cars for it. The Government plans the extension of this line to Coração de Maria and several branches to other parts of the sugar district of Santo Amaro.

The Eastern Central Railway has shown successive deficits for many years. No statistics are available as to its financial standing. Steps are being taken to better its condition.

The main line of the Nazareth Railway extends from Nazareth to Toca da Onca, 196 kilometers (122 miles), with a 29-kilometer (18-mile) branch, São Miguel to Amargosa. The line was completed in 1913. The maximum gradient is 2.75 per cent. Daily passenger-train service in each direction is operated on the main line and branch.

The Santo Amaro Railway, which, as stated, serves the best sugar district of the State, runs from the town of Santo Amaro to Jacu, 34 kilometers (21 miles), with a short extension to Bom Jardim.

The Western Central Railway extends from Santo Amaro to Agua Comprida. Traffic is light, the passenger traffic being handled by four trains a week in each direction.

RAILWAYS OF THE STATE OF PARA.

The Braganca Railway, a State line, runs from the Port of Para (Belem) to Castanhal, Livramento, Braganca, Benjamin Constant, etc., approximately 316 kilometers (196 miles), including branches. The railway was originally authorized in 1870 and completed in 1907. At one time it was under the control of a British company, but later was acquired by the State. This narrow-gauge railway is comparatively well built and sufficiently equipped. Presumably the most important of the short branches operated is that extending from Igarapeassu to San Antonio de Prata, approximately 21 kilometers (13 miles). Short extensions are planned.

The Tocantins Railway is in operation from Alcobaca, a port of some size, to Breu Branco, 43 kilometers (27 miles); the total length in 1916 was 56 kilometers (35 miles). A considerable mileage is either partly constructed or projected, this company's program being very comprehensive.

RAILWAY DEVELOPMENT IN STATE OF SÃO PAULO.

The State of São Paulo contained as of November, 1917, approximately 4,000 miles of railway lines, or nearly one-quarter of the entire railway mileage of Brazil. The following table indicates the development of the mileage, earnings, tonnage, etc., since 1895:

Items.	1895	1905	1910	1915
Miles in operation.....	1,798	2,346	2,998	3,924
Receipts.....	\$11,545,000	\$21,105,000	\$28,150,000	\$31,192,000
Expenses.....	\$5,720,000	\$11,400,000	\$14,325,000	\$17,150,000
Passengers.....	4,268,083	4,604,082	7,240,313	7,824,000
Animals.....	166,022	217,108	310,496	250,300
Luggage.....	41,858	47,702	67,670	73,000
Goods.....	2,159,085	2,986,511	4,584,540	4,718,000

OTHER BRAZILIAN RAILWAYS.

In addition to the various railways thus far reviewed, there are numerous lines of more or less importance, serving different sections of the Republic. Some of these lines are under the control and management of the Government or of different States; others are State-owned and leased to private companies; and the rest are directly operated by private concerns. A brief description of certain of these lines follows:

The *Compagnie Chemins de Fer de l'Est Brésilienne* was established in Paris in 1911, to carry out a comprehensive scheme sanctioned by the Government to take over and extend various railway lines in the State of Bahia and in neighboring States. The lines were largely to be operated under a 60-year lease from the Government. The system was to comprise the Central of Bahia Railway, the Bahia & São Francisco Railway, the São Francisco Railway, and other lines, with various extensions to link together existing railways. Among the important sections are (1) the line extending from São Felix to Monte Cruzeiro, Queimadinhos, and Machado Portello, 268 kilometers (167 miles); (2) Cachoeira to Feira, 45 kilometers (28 miles); (3) Bahia to São Francisco, Algoimhas Timbo, Barracao, and Aracaju, 431 kilometers (268 miles); (4) São Francisco to Bomfim and Joazeiro, 453 kilometers (281 miles); (5) Ponta d'Areia to Teophilo Ottoni, 378 kilometers (235 miles). The system has shown evidences of fair earning power, and a number of the lines are handling a fair sugar traffic.

The *Victoria & Minas Railway* (*Cie. des Chemins de Fer de Victoria à Minas*), a French company, operates important mileage. This line is capitalized at 40,000,000 francs, divided into 80,000 shares of 500 francs par value. A sale of these shares was recorded prior to March 31, 1917, on the Stock Exchange at Rio de Janeiro at 60 mil-reis per 500-franc share. There are also outstanding three issues of debentures, amounting to 70,000,000 francs, 15,000,000 francs, and 25,000,000 francs, respectively. The interest rate on each issue is 5 per cent, and the bonds are issued in denominations of 500 francs each. The issues are dated 1902, 1909, and 1911, respectively. Most of the bonds were floated in Paris, the 1911 loan having been publicly offered by the *Crédit Mobilier Français*. Lines extend from Victoria (São Carlos) to São Escuro, 444 kilometers (276 miles), and from Curralinho, a station on the Central of Brazil Railway, to Diamantina, 148 kilometers (92 miles). The railway was completed from São Carlos to Lajao, 277 kilometers (172 miles), in 1908; to Derribadinha, 345 kilometers (214 miles), in 1909; to Nock, 424 kilometers (263 miles), in 1911; and to São Escuro in 1912. It was proposed to carry the line to Itabira, located about 183 kilometers (114 miles) beyond São Escuro. It was expected that, since the richest iron ore deposits in Brazil were to have been reached, sufficient development work would be carried on to assure 3,000,000 tons of ore as freight annually. A portion of the iron country is now reached by the railway, and in time a substantial traffic in the ore should be secured. In 1910 contracts were signed for the electrification of the system, and money was borrowed in France for this purpose.

The traffic during the early years of the Victoria & Minas Railway has probably not come up to expectations. An important country is traversed, and opportunities for development in various lines are most excellent. The European war has stayed for a time the rapid expansion of this territory, but new settlers and additional capital will follow the termination of the conflict. The railway gives promise for the future.

The Goyaz Railway, capitalized at 28,329,000 francs shares of a par value of 500 francs each, as well as 25,000,000 5 per cent debentures (par 500 francs), was destined to connect the city of Goyaz, capital of that State, with Rio de Janeiro. The railway as built thus far is in two sections—Formigo to São Pedro de Alcantara, 239 kilometers (149 miles), and Araguary to Roncador, 211 kilometers (131 miles). The total mileage projected was about 1,000. The company was originally organized for the purpose of exploiting a concession granted in 1890 for the construction of a railway from Catalao to Palmas, State of Goyaz. The plans laid for the construction of the line have several times been altered. Thus far plans have been carried out as above mentioned, with an additional short branch, Goyandira to Catalao, 23 kilometers (14 miles).

SHARES AND DEBENTURES OF IMPORTANT RAILWAYS.

There follow tables indicating the total capitalization and debenture capital of important railways whose securities are listed at Rio de Janeiro:

SHARES.

Railways.	Capital.	Par value.	Latest quotation.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
Cabo Frio.....	500,000	100	.....
Campos do Jordão.....	3,000,000	200	.....
Colonização Porto do Souza Manhassú.....	2,000,000	200	.....
Ferrovária Brasileira.....	^a 2,000,000	^a 500	.....
Goyaz.....	^a 28,329,000	^a 500	28.5
Federaes B. R. Sul Mineira.....	20,000,000	200	28
Itabapoana.....	50,000	200	.....
Leopoldina Railway.....	^b 5,500,000	^b 10	76
Minas de S. Jeronymo.....	5,000,000	50	28.5
Muriahé.....	1,000,000	200	.....
Nordeste de Minas.....	500,000	100	.....
Noroeste do Brasil.....	20,000,000	200	24
Norte do Brasil.....	12,500,000	^c 200	21
Norte de Minas.....	10,000,000	200	.....
Norte do Paraná.....	440,000	20	.....
North Alagoas Railway.....	3,000,000	200	.....
Paracatú.....	10,000,000	200	.....
Paulista.....	80,000,000	200	.....
Pelotas.....	5,000,000	500	.....
Rio Doce-S. Matheus.....	^a 6,000,000	^a 500	.....
S. Paulo-Rio Grande.....	^a 25,000,000	^a 500	32
S. Luiz a Caxias.....	2,000,000	200	.....
Santa Barbara.....	2,500,000	200	.....
Theresopolis.....	3,000,000	200	.....
Victoria & Bahia Railway.....	^b 500,000	^b 20	.....
Transbrasiliera.....	^a 30,000,000	^a 500	.....
Viação Serrana.....	3,200,000	200	.....
Victoria a Minas.....	^a 40,000,000	^a 500	60
Victoria (Brazil) Railway.....	^b 280,000	^b 20	.....

^a Francs.

^b Pounds sterling.

^c 140 milreis paid in.

^d 150 francs paid in.

DEBENTURES.

Railways.	Amount.		Par value.		Interest rate.	Latest quotation.
	Milreis.	Francs.	Milreis.	Francs.		
Agricola de Santa Barbara	2,500,000	.....	100	.....	8	.....
Campos do Jordão.....	4,000,000	.....	100	.....	8	.....
Federaes Brasileiras, R. Sul Mineira.....	.....	50,000,000	.....	500	5	.....
Ferroviana Brasileira.....	.....	15,000,000	.....	500	5	.....
Goyaz.....	.....	25,000,000	.....	500	5	.....
Minas de S. Jeronymo.....	41,500,000	.....	100	.....	7	105
Noroeste do Brasil.....	.....	{ 40,000,000	.....	500	5	.....
S. Paulo-Rio Grande.....	.....	{ 17,500,000	.....	500	5	.....
Theresopolis.....	1,000,000	280,711,509	.....	500	5	200
Viação de S. Paulo-Matto Grosso.....	3,000,000	.....	200	.....	8	200
.....	.....	.....	100	.....	8	.....
Victoria a Minas.....	.....	{ 70,000,000	.....	500	5	.....
.....	.....	{ 15,000,000	.....	500	5	.....
.....	.....	25,000,000	.....	500	5	.....

^a The amount outstanding is 1,492,000 milreis.

MILEAGE OF BRAZILIAN RAILWAYS.

Of the 25,506 kilometers (15,849 miles) of railways in operation within the Republic of Brazil in the year 1915, approximately 21,587 kilometers (13,414 miles) were operated by private parties, largely through lease from the Federal Government or from various States, and 3,919 kilometers (2,435 miles) directly by the State. The railway mileage operated by a majority of the lines is shown in the following table (the Brazil Railway's leased and controlled lines are shown separately):

	Miles.
Brazil, Central of (Government)	1,230
Bahia	1,071
Blumenau (German line)	44
Brazil, Great Western of (British)	1,004
Brazil, Northeastern of (British)	449
Brazil, Northwestern of	581
Brazil Great Southern Railway	^a 109
Brazil Great Southern Railway Extensions	^a 76
Brésil, Cie. Auxiliaire de Chemins de Fer au	^a 1,355
Leopoldina Railway (British)	1,763
Madeira-Mamore	226
Mogyana Railway & Navigation Co.	1,081
Norte do Parana	25
Parana	^a 252
Paulista	721
São Paulo-Rio Grande	1,100
Sorocabana	876
São Paulo	153
Serrinha	31
State of Bahia, Southwestern	^a 62
Thereza-Christina	81
Braganca (State)	^a 196
Nazareth Railway	^a 140
Santo Amaro	^a 27
Victoria-Minas Railway	^a 373
Goyaz Railway	^a 280
Tocantins-Araguaya	35
Total	^a 13,341

^a Approximate mileage.

Although, as indicated above, railway progress in Brazil has been substantial, much additional development will probably follow the conclusion of the war in Europe.

PUBLIC UTILITIES.

BRAZILIAN TRACTION, LIGHT & POWER CO.

The largest and most important public-utility company in Brazil is the Brazilian Traction, Light & Power Co. (Ltd.), a Canadian corporation, registered in 1912 as a consolidation of the Rio de Janeiro Tramway, Light & Power Co. (Ltd.); the São Paulo Tramway, Light & Power Co. (Ltd.), and the São Paulo Electric Co. The parent company at the time of consolidation assumed all the debts, guaranties, and other responsibilities of the companies acquired.

The direct capitalization of the Brazilian Traction, Light & Power Co. consists of: (1) \$7,500,000 three-year secured notes, due November 1, 1919, behind which is deposited, as collateral, \$15,004,450 bonds of underlying companies (interest payable May and November); (2) \$10,000,000 cumulative 6 per cent preference shares, on which full dividend payments are being made; and (3) \$106,417,800 ordinary shares. Dividend payments on the ordinary shares have been as follows: 1912, 1½ per cent; 1913 and 1914, 6 per cent; 1915 and 1916, 4 per cent; in March, 1917, 1 per cent was paid (quarterly rate); in June, 1917, the dividend was passed.

Income accounts of the company during recent years have shown the following results:

Items.	1914	1915	1916
Revenues from securities owned and from other sources.....	\$8,058,813	\$5,612,876	\$6,019,473
Surplus applicable for dividends.....	7,666,532	5,394,802	5,674,642
Preferred dividends (6 per cent).....	600,000	600,000	600,000
Ordinary dividends.....	6,257,119	4,249,380	4,251,488

Under the plan of consolidation effected in 1912 stocks of the old companies were exchanged for ordinary shares of the holding company as follows:

Companies	Old companies' stocks.	New stock issued in exchange.
Rio de Janeiro Tramway, Light & Power Co.....	\$45,000,000	\$72,000,000
São Paulo Tramway, Light & Power Co.....	10,000,000	27,500,000
São Paulo Electric Co.....	5,000,000	5,000,000

RIO DE JANEIRO TRAMWAY, LIGHT & POWER CO. (LTD.).

The Rio de Janeiro Tramway, Light & Power Co. (Ltd.), which is controlled by the Brazilian company, as previously mentioned, through ownership by the latter of approximately 449,304 of the 450,000 outstanding shares, is in turn virtually a holding company. It owns the whole or a large part of the stocks of some 14 companies

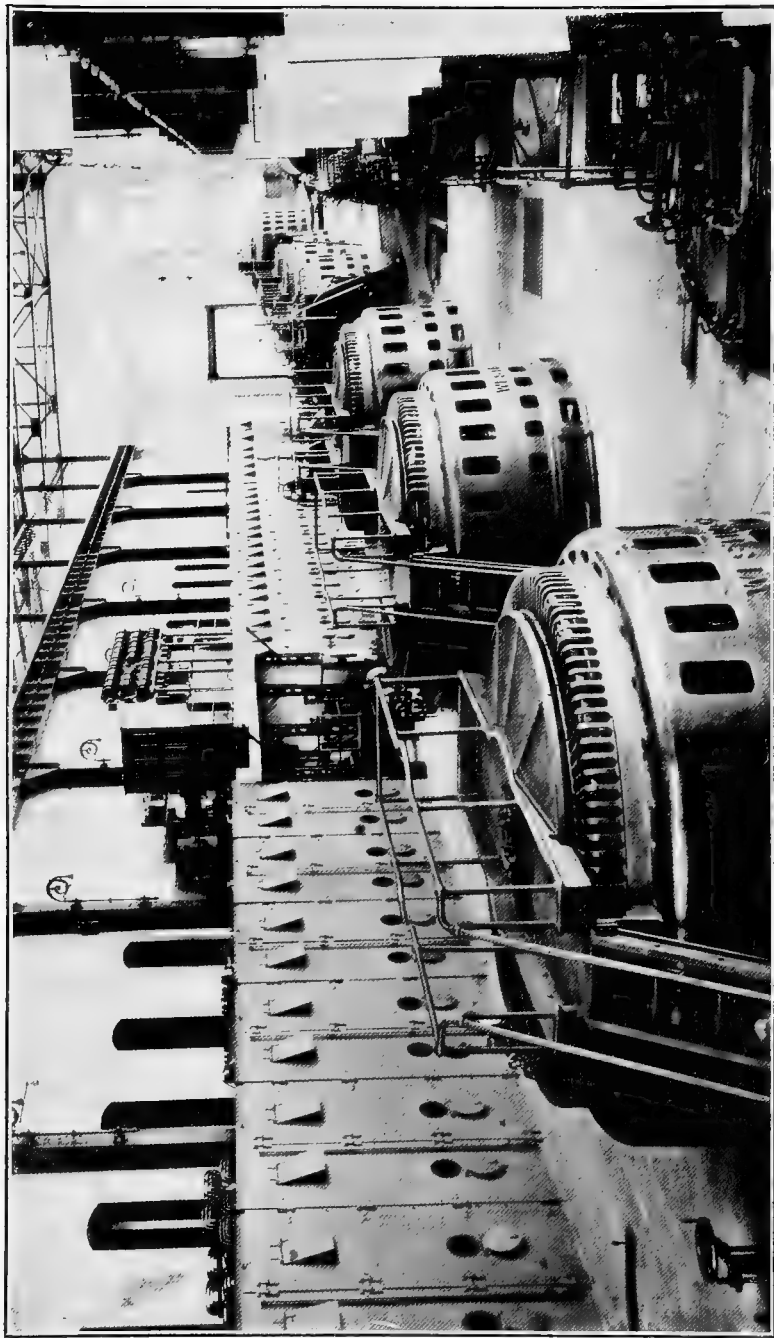


FIG. 10.—HYDRAULIC STATION OF RIO DE JANEIRO TRAMWAY, LIGHT & POWER CO.



FIG. 11.—FLOATING QUAYS AT MANAOS, BRAZIL.

operating traction lines, gas, electric-lighting, and power systems, telephone lines, etc. The traction lines handle both urban and inter-urban traffic and have an approximate mileage of 237, all electrically operated. The car mileage for 1916 was 24,667,154 and the total number of passengers carried was 198,677,975. A total of 1,183 cars of various kinds were in service, as of December 31, 1916; also 836,269 incandescent lamps (419,413 in 1912), 10,860 arc lamps (9,084 in 1912), and 31,551 telephones. Light and power consumers numbered 50,210.

In addition to the \$45,000,000 stock, on which 5 per cent per annum is paid, the Rio de Janeiro company had outstanding, in 1916, \$50,627,867 bonds, including \$25,000,000 first gold 5's due 1935, as well as \$5,266,000 fifty-year mortgage 5's due 1958, interest April and October. These bonds are listed on the stock exchanges of Toronto, Montreal, London, and Brussels.

The Jardim Botânico Tramways, about 80 per cent of the £1,400,000 stock of which is owned by the Rio de Janeiro company, has outstanding an issue of £1,400,000 first sterling 5 per cent bonds, guaranteed by the parent company. These bonds are due in 1951, and interest is payable January and July. They were quoted 79 to 82 in January, 1918.

The gas and electric franchises of the company expire in 1945; telephone franchises expire partly in 1928, although some of the franchises are perpetual; tramway franchises extend until 1970.

SÃO PAULO TRAMWAY, LIGHT & POWER CO.

The São Paulo Tramway, Light & Power Co. was incorporated in 1899 to acquire important tramway and lighting systems in and near the city of São Paulo. Of the outstanding 100,000 shares of stock of this company, 99,814 are held by the Brazilian Traction, Light & Power Co. Dividends on these shares have usually been at the rate of 10 per cent per annum. The funded debt of this company amounts to approximately \$10,000,000, this including £821,917 perpetual consolidated debenture stock and \$6,000,000 first gold 5 per cent bonds due 1929, listed in London, England, and Toronto, Canada. An additional issue of £1,000,000 general bonds due 1963 has been authorized, and £514,000 are deposited as part collateral for the notes of the Brazilian Traction, Light & Power Co. The company operates approximately 141 miles of electric traction lines, and owns 359 passenger and 92 freight cars. A total of 55,154,564 passengers were carried in 1916, the car mileage being 10,153,657. As of December 31, 1916, there were 30,251 consumers of light and power. Incandescent lights in use totaled 332,392, as compared with 124,004 in 1912.

SÃO PAULO ELECTRIC CO.

The São Paulo Electric Co., the entire 50,000 shares (\$5,000,000) of which are held by the Brazilian Traction, Light & Power Co., has a bonded debt of £2,000,000 first gold 5's due 1962, interest payable January and July, which are listed on the London Stock Exchange. This company owns an important and extensive hydroelectric property, having a contract to furnish the São Paulo Traction, Light & Power Co. with 15,000 horsepower and to supply electric lighting

and power to certain towns and cities in the State of São Paulo. Three and one-half miles of tramway are also operated and nine cars owned.

Separate statements of earnings of the Rio de Janeiro Traction, Light & Power Co. (Ltd.), the São Paulo Traction, Light & Power Co. (Ltd.), and the São Paulo Electric Co. are not made public.

OTHER ENTERPRISES CONTROLLED BY BRAZILIAN TRACTION, LIGHT & POWER CO.

In addition to its holdings of shares in the companies heretofore described, the Brazilian Traction, Light & Power Co. owned, through a subsidiary, approximately 95 per cent of the shares of the Companhia Telephonica do Estado de São Paulo and the Companhia Rede Telephonica Bragantina. A new company known as the Rede Rio de Janeiro & São Paulo Telephone Co., the \$5,000,000 stock of which is owned by the Brazilian company, is the subsidiary holding the above-mentioned shares, as well as the shares of two other telephone companies in the territory served. A telephone line, 300 miles in length, extending from Rio de Janeiro to São Paulo, was under construction in 1917 and has presumably been completed.

INCREASED RECEIPTS—PRICES OF SECURITIES.

In November, 1917, it was estimated that the gross receipts of the Brazilian Traction, Light & Power Co. for the calendar year 1917 would be approximately 8,000,000 milreis in excess of 1916, and that operating income totals would increase 2,500,000 to 3,000,000 milreis.

Securities of the parent and subsidiary companies have been quoted as follows:

Securities.	High price since 1911.	Price January, 1918.
Brazil Tramway, Light & Power Co.:		
Ordinary stock.....	94	44
Preference stock.....	102½	89
Notes.....	99	87
Rio de Janeiro Traction, Light & Power Co. first 5 per cent bonds.....	107½	86
São Paulo Tramway, Light & Power Co.:		
5 per cent first bonds.....	108	87
5 per cent perpetual debentures.....	111	74
São Paulo Electric Co. 5 per cent 50-year bonds.....	97	76

RIO DE JANEIRO CITY IMPROVEMENT CO.

The drainage concessions for the city of Rio de Janeiro are held by the Rio de Janeiro City Improvement Co., a British company, incorporated 1862. These concessions expire in 1947 and the properties revert to the city without compensation. The company receives 60 milreis (at an exchange rate of 19d.) per annum for each house drained. The subscribed capital of the company is £1,192,775 in shares of £5 and approximately £537,100 5 per cent debentures maturing in annual installments. Dividends for 1905 to 1913, inclusive, were at the rate of 5 per cent per annum; in 1914, 2½ per cent was paid, and in 1915, 7½ per cent. The company's debentures were quoted in 1918 (January) at 84½, as compared with 103, the high price since 1911. The ordinary stock was quoted in January, 1918, at

approximately $3\frac{1}{2}$ (69s. per £5 share), this comparing with $4\frac{1}{2}$, the high price since 1911.¹

TRAMWAYS AND ELECTRIC PLANT IN CURITIBA.

The South Brazilian Railways Co. (Ltd.) owns tramways and electric-lighting plant in the city of Curitiba (population 50,000), State of Parana. The tramway lines are slightly more than 16 miles in length. A power house is owned. This is a French company, registered in 1910. The State of Parana may purchase the tramway system under certain conditions favorable to the stockholders. The capitalization of the company consists of £300,000 shares of £4 par (100 francs); also £289,160 5 per cent debentures, first series, interest April and October, maturity 1968, secured by a first charge on the tramway undertaking, together with £372,800 5 per cent debentures, second series, due 1968, secured by a first charge on the electric-lighting and power undertakings. There were also outstanding in 1914 certain loans, and the company met with some difficulties, owing to the war, in arranging to meet its financial requirements. Receipts for 1915 were 1,161,407 milreis.

WATER SERVICE AND DRAINAGE SYSTEM OF SÃO PAULO.

The water service and the drainage system of the city of São Paulo were originally held by the Cantareira Water Supply and Drainage Co., of São Paulo. This company was established in 1878 and in 1888 floated an issue of £350,000 5 per cent debenture bonds in London, approximately £87,000 of which remain outstanding, the rest having been redeemed through sinking-fund operations. The property was acquired in 1892 by the State of São Paulo, the State assuming responsibility for the principal and interest.

CITY OF SANTOS IMPROVEMENT CO.

The water, gas, electric, and tramway franchises for the city of Santos are held by the City of Santos Improvement Co., a British company, registered in 1880. The franchises vary in length, the exclusive gas franchise expiring in 1920, water in 1930, electric lighting in 1924, the works remaining the property of the company in perpetuity. The tramway lines are 38 miles in length, of which $28\frac{1}{2}$ miles are under perpetual franchises and the remainder under franchises expiring in 1923 and 1938. The capitalization of the company consists of £800,000 ordinary stock, £200,000 6 per cent cumulative preference stock, and two debenture issues, the first debentures being outstanding to the amount of £125,500 (original issue £200,000), and tramway debentures to the amount of £175,200. Dividends on the ordinary stock have varied from 3 per cent to $7\frac{1}{2}$ per cent per annum, being 6 per cent in 1917 (see Appendix, p. 504). The ordinary shares (£10 par) were quoted at 6 in January, 1918, this comparing with $13\frac{3}{4}$, the high price since 1911. The preference shares (£10) were quoted at $7\frac{1}{2}$ in January, 1918, and the two debenture issues at 88 and 89, respectively.

PUBLIC-UTILITY COMPANIES IN CEARA.

The Ceara Gas Co. (Ltd.), a British corporation, owns extensive gas works in the city of Ceara, its concession extending until 1958.

¹ For 1917 the net profits totaled £84,632; the amount brought forward was £19,032, making £103,664 surplus, of which £25,000 was transferred to reserve. The dividend for the year was 5 per cent (less tax) on the £1,192,775 shares.

The company has outstanding £10,000 10 per cent first preference shares (par £10); £9,420 10 per cent second preference shares (par £10); also £30,000 fully paid (£10) ordinary shares and £4,266 in ordinary shares, £8 paid. There are also outstanding £25,000 6 per cent debentures, interest payable January and July and principal payable 1927. Full dividends have been regularly paid on the preference shares. The payments on the ordinary shares during recent years have been at the following rates: 1907-8 and 1908-9, 8 per cent each; 1909-10 and 1910-11, 9 per cent each; 1911-12 and 1912-13, 10 per cent each; 1913-14, 6 per cent; 1914-15 and 1915-16, none. The company had a reserve account of £24,000 in 1916, and carried forward to the 1917 fiscal year £3,329. The London office of the company is at 9 Queen Street Place, E. C.

The Ceara Tramways, Light & Power Co. (Ltd.) was incorporated in 1911 to take over a 10-mile mule tramway system, receiving a concession from the municipality of Ceara for 76 years from 1911, to electrify the existing system and to extend the line about 4 miles, as well as to establish and work an electric lighting and power plant. At the end of the concession the properties revert to the municipality without remuneration. The authorized capitalization is £400,000, one-half to be ordinary stock and one-half 7 per cent preference stock. At the close of 1916, £91,428 ordinary stock was outstanding, none of the preference stock having been issued. Approximately £320,000 5 per cent first debenture stock (authorized £400,000) has been issued, of which £250,000 was offered in 1912 by Parr's Bank, at 92½, with a 10 per cent ordinary stock bonus. The surplus of receipts over expenditures for 1915 totaled 243,323 milreis. Owing to the war and the drop in exchange, the sinking fund of 1 per cent was suspended temporarily and there was a slight adjustment of interest payments. The property has now been practically completed and, with the exception of a small tramway extension, has been placed in full operation.

PERNAMBUCO TRAMWAYS & POWER CO.

The Pernambuco Tramways & Power Co. (British) operates the tramways, gas works, and electric-lighting plant in the city of Recife (Pernambuco). This company has acquired the shares of several utility companies, including the Brazilian Street Railway (Ltd.). Capitalization consists of: £400,000 6 per cent cumulative preference shares (par £1; quoted 12s. January, 1918); £816,030 ordinary shares (par £1; quoted 6s. 6d. January, 1918); £1,022,900 5 per cent debentures, principal payable 1953 at par, by means of sinking fund, and interest payable January and July (quoted 66½ per cent January, 1918); also a loan of £84,840 secured by debentures. Interest has been regularly met on outstanding obligations and a surplus earned. The balance carried forward to the 1916 account amounted to £14,770; later information is not available. The total length of tramways in operation is approximately 78 kilometers (48 miles). In 1917 a dividend of 3½ per cent was paid on the preference stock.

The Brazilian Street Railway Co., the securities of which have been mostly acquired by the Pernambuco Tramways & Power Co., is capitalized as follows: £32,537 5 per cent cumulative preference shares, par £1; £87,000 ordinary shares, par £1; and £45,950 5 per cent

debentures. The preference dividend was paid in full until 1914, and a small rate was annually maintained on the ordinary shares until that date. A very large proportion of the security holders have exchanged their stocks and debentures, as stated above.

PUBLIC-UTILITY COMPANIES IN MANAOS.

The Manaos Tramways & Light Co. (Ltd.) furnishes the light and power to the city of Manaos and operates about 23 miles of tramway lines (electric). A description of the company will be found in the Appendix (p. 507). The concession extends for 60 years from 1908, at the end of which time the property reverts to the State of Amazonas without payment. There are outstanding £300,000 shares of £1 and £300,000 first-charge debentures. Interest has been met on the debentures, and on the stock 3 per cent was paid in 1911-12 and 4 per cent in 1912-13. No subsequent dividends had been paid to the close of 1916. In January, 1918, the £1 stock was quoted at 4s. and the debentures at 68.

The waterworks and sewerage plant of the city of Manaos were constructed by the Manaos Improvements Co. Its concession, which was for 60 years from 1906, has been the subject of continuous litigation and contention. The company has outstanding £44,800 prior-lien bonds, £500,000 6 per cent first debentures, and £150,000 second debentures (held by bankers), also £200,000 7 per cent cumulative preference stock and £200,000 ordinary stock. The preference stock has not received dividends since 1908, these dividends remaining due and unpaid. The debenture holders have agreed to defer receiving interest until six months after the conclusion of the European war. The preference shares of £10 par were quoted in 1914 at £3 10s.; no later quotation is available. The 6 per cent debentures were quoted at 55 in 1914.

PARA PUBLIC WORKS CO.—PARA ELECTRIC RAILWAYS & LIGHTING CO.

The Para Public Works Co. (see Appendix) holds the telephone concession in the city of Belem (Para) and formerly held the public-cleaning contract. The latter was canceled in 1912 upon payment by the city of £275,200 municipal bonds. There is £60,000 ordinary stock and £2,000 deferred stock outstanding. The net profit for 1917 was £7,456, and, including the amount brought forward, the available surplus was £9,785. A dividend of 8 per cent was paid on the £60,000 ordinary shares.

The Para Electric Railways & Lighting Co. (Ltd.), a British company registered in 1905, operates the tramways and electric lighting system of the city of Belem (Para) and, through control of the Para Gas Co., the gas lighting. The tramways are operated by electricity and are 34½ miles in length. The outstanding capital consists of £325,000 6 per cent cumulative preference stock (par £5), £390,000 ordinary stock (par £5), and £668,400 5 per cent first debenture stock (original issue £700,000), interest payable June and December 1 and principal repayable through a cumulative sinking fund of ½ per cent per annum. Full dividends have regularly been paid on the preference stock, and during the years 1909-10 to 1912-13, inclusive, 10 per cent was annually paid on the ordinary stock. In 1913-14 the rate was 6 per cent, and in the two subsequent years the rate was 5 per cent per annum.

The securities of this company, during recent years, have been quoted as follows:

Securities.	High price since 1911.	Price January, 1918.
First debentures.....	103½	75
6 per cent cumulative preference ¹	5½	4½
Ordinary shares ¹	8	4

¹ Par £5.

The concession of the company is for 99 years from December, 1905, at the end of which period the property is to pass into the possession of the municipality without compensation. At the close of 1915, the company held reserves for contingencies to the amount of £50,522, reserves for depreciation and renewals of £96,545, and carried forward to 1916 the sum of £18,935. Preference shares receive their dividends semiannually, March and September.

SÃO PAULO GAS CO.

The São Paulo Gas Co., an Anglo-Canadian enterprise, controls the gas works and system operating in the city of São Paulo. The company's concession expires in 1950, the works, however, remaining the property of the company after that period with the privilege of continuing business under the common law. The authorized capitalization is £500,000, of which £425,000 is now outstanding, consisting of £150,000 6 per cent cumulative preference shares, par £10, and £275,000 ordinary shares of £5 each. Full preference dividends have regularly been paid for many years, and the ordinary shares from 1905 to 1908, inclusive, received 8 per cent per annum; in 1909 and 1910, 9 per cent each; 1911, 12 per cent; 1913, 6 per cent; and in later years 6½ per cent per annum. The preference shares sold at £8 in January, 1918, as compared with the high price since 1911 of 12½.

In addition to the share capital, this company had outstanding, in 1917, £125,000 5 per cent debentures due 1928, the company having the power to redeem them at par on six months' notice. Interest on these debentures is payable January and July 1. These debentures, which are issued in £50 denominations, were quoted January, 1918, at 42, this comparing with the high price since 1911 of 51. The general reserve fund of the company in 1915 amounted to £125,000. This company is an old one, its incorporation dating from the year 1869.

BAHIA TRAMWAYS, LIGHT & POWER CO.

A British company known as the Bahia Tramways, Light & Power Co. formerly held the tramway and lighting contract for the city of Bahia. In 1913, under an agreement, the property was sold to the city, the company receiving bonds of the municipality. Subsequently the interest and sinking-fund payments on the municipal bonds went into default. The capitalization of the former company consisted of \$7,386,300 5 per cent first-mortgage debentures and \$3,500,000 stock. It is hoped that some portion of the debentures will be repaid, but the stock will probably be valueless.

MINAS GERAES ELECTRIC LIGHT & TRAMWAYS CO.

The tramway, electric light and power, and telephone service of the city of Bello Horizonte is furnished by the Minas Geraes Electric Light & Tramways Co. (Companhia de Electricidade e Viação Urbana de Minas Geraes), a local company incorporated in 1912. The franchise held by the company is for 53 years and covers also territory suburban to the city. The rental paid by the company to the State of Minas Geraes for the exclusive public-utility privilege of the district is £17,000, minimum. The capitalization of the company is equivalent to \$500,000 shares and the outstanding balance of £120,000 5 per cent first-mortgage bonds, par £20 to £100, issued in Great Britain, these being guaranteed as to principal and interest by the State of Minas Geraes (interest payable April and October and principal due finally in 1953 through 1 per cent annual cumulative sinking fund). The original offering price for these bonds was 90½ (1913). Dividends on the stock of the company for 1913, 1914, and 1915 were 8½ per cent, 10 per cent, and 12 per cent, respectively. In 1915 the company's reserve fund amounted to 49,672 milreis.

TRAMWAY SYSTEM IN NICTHEROY.

The tramway system of the city of Nictheroy, capital of the State of Rio de Janeiro, is owned by the Companhia Cantareira e Viação Fluminense, which also operates a line of ferry boats running between Nictheroy and Rio de Janeiro. A total of 45,599 of the 50,000 shares (par 200 milreis) of the company are owned by the Leopoldina Terminal Co. (Ltd.), a British company (see p. 147). The tramway system is 72 kilometers (45 miles) in length.

PUBLIC UTILITIES IN RIO GRANDE DO SUL.

The tramway, electric light, and power business of Rio Grande do Sul is controlled by the Port of Rio Grande do Sul Co., which was an undertaking of the Brazil Railway (see p. 151). The public utilities are expected to develop profitably.

OTHER COMPANIES.

Among the important local companies yet unmentioned are the following:

(a) Companhia Telefonica do Parana, furnishing telephone service for a considerable section of the State of Parana. This company is capitalized at 1,200,000 milreis shares and 1,000,000 milreis 7 per cent debentures due 1938. These debentures were originally issued at 90.

(b) Campineira de Tracção, Luz e Força, of Campinas (Campinas Traction, Light & Power Co.), which operates the public utilities in the important city of Campinas, State of São Paulo. This city has a population of more than 50,000 and is the center of an important coffee-producing district. The company has a capitalization of 4,000,000 milreis shares (200 milreis par), together with an issue of 4,000,000 milreis 7 per cent debentures, of which 3,725,000 debentures were in circulation as of the year 1916. Interest on these debentures is payable January and July 25, their final maturity date

is 1940, and their original offering price was 93. The quotation in 1916 was 90. Campinas is located on the Paulista Railway, about 65 miles from São Paulo.

In addition to the cities previously mentioned as having public utilities, there are numerous cities, towns, and villages provided with lighting and water facilities. Not a few cities have tramway systems, among those not already mentioned being Aracaju, State of Sergipe (population 35,000); Campos, State of Rio de Janeiro (population 50,000); Juiz de Fora, State of Minas Geraes (population 35,000); Maceio, State of Alagoas (population 40,000); Parahyba, State of Parahyba do Norte (population 23,000); Uba, State of Rio de Janeiro (population 37,000); and Victoria, State of Espirito Santo (population 20,000). The above list is by no means complete.

There is an important cable and telegraph system operating between Para and Manaos, this being owned by the Amazon Telegraph Co., a British concern. The concession extends for 50 years from 1895 and there is a subsidy of £17,500 per annum extending for 40 years from the commencement of operations. The Government may purchase the property on terms that are favorable to the stockholders. The authorized and outstanding capitalization of the company is £250,000 shares of a par value of £10, and there are also outstanding £262,400 of an original issue of £300,000 debentures, bearing interest at 5 per cent per annum (issued in 1909 at 98 per cent), a cumulative sinking fund of $2\frac{1}{2}$ per cent per annum retiring the bonds prior to July 1, 1935. In the event of the purchase of the property by the Brazilian Government the issue is to be retired at 105 per cent. There is a general reserve of £40,000 and a reserve for renewal and maintenance of cable steamers of £14,500, and a balance carried forward in 1916 of £6,806. The dividends paid during recent years have been as follows: 1910-11, 4 per cent (initial dividend); 1911-12 and 1912-13, $4\frac{1}{2}$ per cent free of income tax; 1913-14, 3 per cent, less tax; 1914-15, none; 1915-16, 3 per cent; 1916-17, 4 per cent. The debentures were quoted at 89 in January, 1918, and the shares at 5 (£10 par).

In addition to the various companies described in preceding paragraphs, there are numerous other enterprises of similar character, mostly under local management, providing light and power and in some instances tramway service to other cities, towns, and villages in the Republic. Although numerous towns and cities remain without proper public-utility service, it can not be said that Brazil is backward in this field. In the State of São Paulo alone there are no fewer than 160 cities and localities provided with electric lighting facilities, which are also extended to many of the coffee and agricultural estates in the outlying districts.

POSSIBILITIES OF WATER-POWER DEVELOPMENT.

The powerful waterfalls, of which Brazil has so many, assure the future of hydroelectric development, and as the great country grows in wealth and population there is little doubt that the demand for hydraulic power for lighting, manufacturing, and other purposes will substantially and steadily increase. It is calculated that the hydraulic power in the State of São Paulo is not less than 3,000,000 horsepower, of which not more than one-twelfth has been utilized. It has been stated that the immense Guayra Falls, in the interior,

at present almost unknown to the outside world, are more than 300 feet in height, about 2 miles in extent and discharge about 13,000,000 cubic feet of water every minute. The hydraulic force has been calculated at 65,000,000 to 80,000,000 horsepower. Iguassu Falls, which is partly Brazilian, has a hydraulic force, it is stated, of nearly 15,000,000 horsepower. Other falls, rapids, and cascades exist by the thousands, yet scarcely a score are being used to furnish power.

SECURITIES QUOTED ON STOCK EXCHANGE AT RIO DE JANEIRO.

There follows a list of important public-utility companies whose securities are quoted on the Stock Exchange at Rio de Janeiro:

SHARES.

Companies.	Capital.	Par value.	Paid in.	Reserves, etc.	Last sale
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
Brazileiros de Energia Eléctrica	30,000,000	200	200	994,619	.....
Brazilian Traction, Light & Power	4,000,000	200	200	1,188,850	.....
Carloca	2,500,000	100	100	1,831,538	.....
Carris Urbanos	6,000,000	100	100	1,802,189	.....
Electricidade e Lavoura	120,000	100	100	.....	.....
Electricidade e Máquinas	300,000	200	200	.....	.....
Electricidade de São Paulo e Rio	1,200,000	200	200	.....	.....
Electricidade e Viação Urbana de Minas Geraes ..	1,500,000	200	200	277,061	220
Fluminense de Força e Luz	500,000	100	100	.....	60
Força e Luz Cataguazes-Leopoldina	400,000	100	40	.....	.....
Força e Luz de Campos	2,450,000	100	100	141,499	80
Força e Rede Jahu	205,000	200	200	.....	.....
Força e Luz N. Fluminense	550,000	200	200	22,657	210
Força e Luz de São Paulo	2,500,000	200	200	395,023	.....
Força e Luz de Palmyra	200,000	100	100	16,728	.....
Força e Luz Rio Preto	345,000	100	100	.....	100
Força e Mineração Sta. Anna	45,000	100	100	.....	.....
Industrial de Electricidade	2,000,000	200	200	45,868	20
Jardim Botânico	21,000,000	200	200	4,314,253	175
Luz Força de Minas Geraes	800,000	200	100	.....	90
Mineira de Electricidade	2,500,000	200	200	.....	.....
Mineira de Energia Eléctrica	200,000	200	200	.....	.....
Paranaense de Electricidade	650,000	100	.....	.....	.....
Paulista de Electricidade	2,000,000	200	200	8,190	.....
Paulista de Força e Luz	2,000,000	200	200	.....	.....
Pernambuco	2,000,000	100	100	38,583	.....

a 800,000 milreis outstanding.

DEBENTURES.

Companies.	Total issue.	Par value.	Interest rate.	Last sale.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Per cent.</i>	<i>Milreis.</i>
Electricidade de São Paulo e Rio	1,200,000	200	8	.....
Fluminense de Força e Luz	300,000	100	10	102
Força e Luz Cataguazes-Leopoldina	300,000	200	8	.....
Força e Luz de Campos	a 400,000	100	8	.....
Força e Luz de Jahu	90,000	200	12	.....
Força e Luz de Palmyra	150,000	100	8	.....
Força e Luz Ribeirão Preto	100,000	200	12	.....
Força e Luz Ribeirão Preto (C)	120,000	200	10	202
Industrial de Electricidade	2,000,000	200	8	35
Paulista de Força e Luz	b 1,500,000	200	8	.....

c 374,200 milreis outstanding.

b 1,458,400 milreis outstanding.

PORT AND HARBOR IMPROVEMENTS.

The rapid development of the resources of Brazil and the consequent increase in foreign trade have necessitated extensive improvements of the ports and harbors, which exist in large numbers along

the vast Atlantic seaboard and in the rivers. Twenty years ago harbor facilities were almost negligible. To-day port works have been constructed in many large harbors and elaborate plans have been laid for further improvements. Some of these ports were constructed for private companies to operate; others are Government enterprises.

PORT OF PARA.

The most northerly port handling ocean traffic is the port of Para (Belem), located on the southern side of the Amazon delta. The works were constructed by the Port of Para Co., a Farquhar-Pearson enterprise. A receiver was appointed for the company in 1914. The capitalization of the company at the time of receivership consisted of \$10,500,000 6 per cent noncumulative participating preferred shares (\$17,500,000 authorized) and \$13,000,000 common stock (\$15,000,000 authorized). The approximate bonded debt consisted of £3,600,000 5 per cent first-mortgage 50-year bonds and £2,500,000 5 per cent 60-year first-mortgage bonds (a large portion of the balance of the £5,000,000 bonds authorized were also pledged as collateral for loans). The company further guaranteed as to principal and interest £1,000,000 6 per cent bonds of the Madeira-Mamore Railway (see p. 156). Some of the properties controlled by the Port of Para Co. were as follows:

Upward of 7,500 feet of quays and wharves for ocean-going and river steamers.

About 84 acres of reclaimed land behind the quay walls, on which are situated 15 warehouses, having an area of more than 380,000 square feet, together with electric cranes, etc.

An electric power house.

An administration office building, completed in August, 1913.

A complete ship-repairing yard with two floating docks in deep water, each capable of lifting 1,800 tons dead weight and placed at the end of a steel jetty connected with large machine shops, foundry, etc. These shops also serve three slipways, each capable of handling vessels up to 800 tons.

A coal depot and depot for inflammables; also three steel oil-storage tanks with a capacity of 24,000 tons of fuel oil.

Other works wholly or partly carried out consisted of:

(1) Three miles of entrance channel, dredged to the depth of 30 feet below low water, giving access to the quays. The channel has been buoyed with 20 illuminated buoys and with other buoys enabling the quays to be approached by night.

(2) A new boulevard 6,000 feet in length by 98 feet in width.

(3) A training bank on the side of the channel to guide the flow of the river in order to maintain the depth of water in the approach channel.

(4) Customhouse, post office, and telegraph office.

The Port of Para Co., in 1911, acquired control of the Amazon River Steam Navigation Co. (Ltd.), which carried an annual subvention of about \$335,000 and which was considered to be a most important factor in the development of river navigation. In 1912 the Amazon River Navigation Co. acquired control of the Companhia Navegação do Amazonas and amalgamated the fleets of the two companies. The Port of Para Co. made large advances to the steamer lines.

In addition to the port works and the river steamer lines, the Port of Para Co. organized the Amazon River Land & Colonization Co., with the object of developing lands suitable for agriculture and graz-

ing. Funds were advanced by the parent company to cover preliminary expenses of the Colonization Co.

The cost of construction and equipment of the Port of Para and the other port developments of the company was stated in 1913 to amount to \$50,693,206.

PORT OF MANAOS.

The harbor works of the port of Manaus were constructed and have been operated by the Manaus Harbor (Ltd.). The concession was dated 1902, and the time limit fixed was 60 years. Valuable warehouses are also owned by the company. The capitalization consists of £300,000 7 per cent cumulative preference shares and £200,000 ordinary or founders' shares; also £350,000 5 per cent debentures, due 1936, interest payable June and December (issued in 1908 at par; quoted 58 January, 1918), and £141,800 sinking fund second debentures to be retired annually until 1945. Dividends on the preference shares were paid in full, 1903 to 1913, inclusive, being passed at the outbreak of war in 1914. Dividend rates on the ordinary shares during the same period have been as follows: 1903-4, 10 per cent (13 months); 1904-5, 15 per cent; 1905-6, 15 per cent; 1906-7 and 1907-8, none; 1908-9 to 1911-12, 7 per cent each; 1912-13 to 1915-16, none.

The harbor works at Manaus, which is located on the Amazon River, 924 miles above Para and near the junction with the Madeira River, consist of a fine stone wall over 1,500 feet in length, large floating docks joined to the wall by a bridge some 550 feet in length, 16 electrically equipped warehouses, etc. The company constructed at its own expense a very substantial customhouse and presented it to the Republic. The depression in rubber dating from a period not long before the outbreak of the European war caused a decrease in the revenues of this company, which previously had enjoyed considerable prosperity.

PORT ANTONIO.

There is another inland port in the Amazon district, at Port Antonio, on the Madeira River, 1,800 miles from the Atlantic Ocean. This was laid out by the Madeira-Mamore Railway (which see). The water at this point is of sufficient depth to accommodate ocean-going steamers. The Madeira-Mamore Railway commences at this point and routes traffic around the dangerous falls and rapids of the Madeira and Mamore Rivers and affords connection with the rubber districts of eastern Bolivia and western Brazil.

PORTS BETWEEN PARA AND PERNAMBUCO.

The harbors between Para and Pernambuco (Recife) have been developed only in a limited manner and, owing to lack of railways running to the interior, have not assumed the importance that they will some day doubtless attain. These ports include:

(1) São Luiz (population 50,000), which is the capital of the State of Maranhão. This city is located on an island and is somewhat difficult to reach owing to shifting sands. Plans are under way to dredge this harbor and to construct a floating dock.

(2) Tutoya, an excellent port with, however, but little traffic, located at the mouth of the Parnahyba River, which runs southward into the State of Piahy.

(3) Amarracao, of little commercial importance.

(4) Camocim, a railway terminal in the State of Ceara and the outlet for good country. Projects have been laid for a 500-foot sea wall and for a floating dock.

(5) Fortaleza, a city of 50,000 inhabitants and capital of the State of Ceara. Improvements are to be effected through dredging and the construction of a breakwater.

(6) Natal, capital of Rio Grande do Norte, which has been improved and will probably assume considerable commercial importance.

(7) Cabedello, chief city of Parahyba do Norte, the harbor of which is to be bettered through dredging and the wharves of which are to be enlarged.

PORT OF PERNAMBUCO.

Pernambuco, the nearest Brazilian port to Europe and one of the largest and most important cities in the Republic, is not sufficiently provided with harbor improvements. A large sum has been voted for the construction of a protecting sea wall, a stone jetty, quays, etc. This work will, it is estimated, cost between \$25,000,000 and \$30,000,000.

PORTS OF JARAGUA AND ARACAJU.

Jaragua, in Alagoas, and Aracaju, in Sergipe, are the only ports of any size between Pernambuco and Bahia. Port works are projected at the former place to cost, it is estimated, \$6,318,000, the work to include a long breakwater. Concessions were given some time ago to improve the channel at Aracaju and otherwise better harbor conditions, but this concession has been canceled, it is said, the proposition remaining open.

PORT OF BAHIA.

The concession for the construction of port works at Bahia was granted some years ago to the Companhia Concessionaria das Docas do Porto da Bahia (Port of Bahia Co.), incorporated in 1902. The capitalization of the company consists of 50,000,000 milreis shares and £3,000,000 5 per cent bonds, repayable by sinking fund 1923 to 1972 and a lien on the port works, etc. A total of 70 per cent of the net revenues of the port was assigned to service of the issue, and if this proved insufficient 2 per cent of the import duties of the port were likewise to be assignable. The bonds were originally issued £2,500,000 in Paris and £500,000 in London. Interest was suspended at the outbreak of the European war. The work has not been fully completed. The net revenues for 1914 were 1,395,974 milreis and for 1915 2,962,202 milreis. The high price for the bonds since 1911 was 97, and the quotation early in 1917 was 46.

The bay on which Bahia is situated is about 25 miles wide and 20 miles in depth and provides good anchorage for large steamers. When the docks, etc., are fully completed the port is certain to make very substantial progress, as it is the center for a rich and productive territory. Additional railways will further increase production and assure larger revenues to the enterprise. The port works may be purchased by the Government in 1922, upon payment of a fixed sum sufficient to assure profit to the then owners.

PORT OF VICTORIA.

Victoria, capital of Espirito Santo, is the only place of importance between Bahia and Rio de Janeiro. Some day it will doubtless become a large port, destined to receive large shipments of minerals, especially if the iron deposits of Minas Geraes are fully exploited. A quay more than half a mile in length is projected at this place, in addition to other works, the estimated total cost to exceed \$4,000,000. Small ports, capable of taking care of vessels of moderate size, exist between Victoria and Rio de Janeiro, these including São João da Barra at the mouth of the Parahyba River, Imbetiba, on the Leopoldina Railway, and Cabo Frio.

PORT OF RIO DE JANEIRO.

Much has been done to improve the magnificent harbor of Rio de Janeiro, largely through the proceeds of loans and through import taxes. The Brazil Railway Co. also constructed important works at the port, these being described on page 150. There is an extensive quay of granite construction $2\frac{1}{4}$ miles in length, a great floating dock that will berth vessels of more than 20,000 tons, a floating crane, etc. Large warehouses have also been provided.

PORT OF SANTOS.

Santos, the port of São Paulo and the greatest coffee-shipping place in the world, has been greatly improved during recent years. The principal docks are owned by the Santos Dock Co. (Companhia Docas de Santos), an important local company capitalized at 60,000,000 milreis shares and 60,000,000 6 per cent debentures, interest January and July. These debentures, which are issued in 200-milreis denominations, recently sold at 206 milreis (103 per cent) and rank among the best Brazilian investments. The 200-milreis shares were quoted at Rio de Janeiro May, 1917, at 451 milreis ($225\frac{1}{2}$ per cent). Large dividends have been paid on these shares, and the company has enjoyed a most successful career.

PORTS BETWEEN SANTOS AND RIO GRANDE DO SUL.

Between Santos and Rio Grande do Sul there are several small ports. The most important of these are: (1) Paranagua, which is to be improved and which is the terminus of the important railway running to Curitiba and Ponta Grossa. (2) São Francisco, destined to assume great importance as a port for shipment of lumber and other products and a railway terminus for lines in Santa Catharina. Plans have been laid, but thus far only partly carried out, to make this port the terminus of a through railway system to Iguassu Falls and thence to Asuncion, Paraguay. (3) and (4) Florianopolis and Laguna, both with great future prospects and both in need of betterments.

In the chapter on "Railway development" (see Brazil Railway), the port works at Rio Grande do Sul have been discussed briefly. These undertakings carried out by the Brazil Railway were very extensive. Port improvements at Porto Alegre and Pelotas are also being made or are projected.

STEAMSHIP LINES.

There are several international and coastal lines flying the Brazilian flag. By far the most important of these lines is the Lloyd Brasileiro, which is virtually a Government line and which operates to various foreign ports. The Companhia Nacional de Navegação Costeira, controlled by Lage Bros., a local concern, and the Companhia Commercio e Navegação are also of considerable importance. There follows a table published in the *Diario Official* just before the outbreak of the war showing the tonnage, etc., of Brazilian ships:

Companies.	Capital.	Number of ships.	Gross tonnage.	Receipts.	
				Passengers.	Freight.
	<i>Milreis.</i>			<i>Milreis.</i>	<i>Milreis.</i>
Lloyd Brasileiro.....	6,000,000	70	106,204	7,565,138	11,252,040
Navegação do Amazonas, Tocantins, Araguaya	12,500,000	1	126	22,713	24,264
Companhia de Navegação Rio Parnahyba.....	150,000	5	1,062	151,340	280,644
Companhia de Navegação Alto Parnahyba.....	250,000	4	146	1,628	37,854
Empresa de Navegação Baixo S. Francisco.....		3	166	11,859	175
Empresa de Navegação Bahiana.....	3,806,000	15	3,572	262,379	576,584
Empresa de Navegação Vição de S. Francisco.	250,000	12	267	156,903	340,613
Navegação do Sul do Rio de Janeiro.....	400,000			11,977	100,313
Navegação do Ibutchy e Uruguay.....	550,000	4	752	36,877	70,771
Companhia Commercio e Navegação.....	5,000,000	18	39,357		5,504,383
Companhia Nacional de Navegação Costeira.....	3,500,000	14	14,454	1,380,422	4,384,313
Empresa de Navegação Espírito Santo, etc.....	200,000	1	900	4,714	169,035
Companhia de Navegação S. João da Barra.....	1,347,000	5	2,250	3,448	999,074
Empresa Navegação Hoecke & Mello & Co.....		3	1,141	108,279	392,213
Jose Barbosa da Silva.....		7	1,808	287,382	798,658
Navegação Mello, Frotas.....		7	1,750	136,108	456,926
Companhia Pernambucana.....		4	707	53,603	242,220
Total.....		173	174,705	a 10,194,770	b 25,630,080

a 79,127 first-class and 123,713 other passengers handled.

b 1,985,868 tons handled.

The Lloyd Brasileiro has at the present time 66 ships with a gross tonnage of 126,000. Certain of its bonds have been issued abroad, guaranteed by the Government of Brazil and virtually recognized as external obligations (see the account of government loans). The company during the past two years has earned considerable profits.

The Companhia Nacional de Navegação Costeira confines its operations to coastwise passenger and freight service. Its capitalization is shown in a subsequent table.

The Companhia Commercio e Navegação confines its operations to freight traffic, its ships touching at most of the local ports. Twenty steamers are operated at the present time, with a gross tonnage of 55,500.

The Empresa de Navegação Bahiana (Bahia Navigation Co.) owns 16 steamships and 1 sailing vessel. The company has in recent years usually reported deficits. The withdrawal of the annual Government subsidy of \$75,000 in 1915 and 1916 considerably increased the annual deficit. Operating results during the years mentioned have been as follows (United States currency):

Item.	1915	1916
Expenses.....	\$489,880	\$563,050
Receipts.....	399,238	376,520
Operating deficits.....	180,642	186,530

The Federal Government is said to be negotiating for the purchase of this line.

The Empresa de Navegação e Viação de São Francisco is owned by the State of Bahia. This line, which operates on the São Francisco River and its tributaries, tapping rich areas, receives an annual subvention of \$50,000 from the Federal Government. Gross receipts from operation in 1916 totaled \$154,088, Government subsidy \$50,000, operating expenses \$138,943, and profit \$65,045.

The following tables indicate the capitalization of various companies, together with latest quotation for shares and debentures and other information. The data are taken from the record of securities quoted on the Stock Exchange of Rio de Janeiro on March 31, 1917:

SHARES.

Companies.	Capital.	Par value.	Funds and reserves.	Last sale.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
Navegação Rio São Paulo.....	400,000	200		
Brasileira de Navegação.....	500,000	200	44,595	
Cantareira e Viação Fluminense.....	10,000,000	200	387,169	215
Commercio e Navegação.....	10,000,000	200	8,023,804	
Nacional de Navegação Costeira.....	11,000,000	200	5,947,028	
Navegação do Amazonas.....	15,500,000	200		
Rio Grandense.....	600,000	100		200
São João da Barra e Campos.....	1,346,800	a 200	269,498	170
Lloyd Brasileiro.....	13,500,000	200		

a 80 milreis paid in.

DEBENTURES.

Companies.	Issued.	Par value.	Interest rate.	Last sale.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Per cent.</i>	<i>Milreis.</i>
Commercio e Navegação.....	6,000,000	200	7	185
Nacional de Navegação Costeira.....	a 17,150,000	200	7	200
Navegação Rio de Janeiro.....	300,000	200	8	

a The amount outstanding is 12,996,000 milreis.

MINING ENTERPRISES.

Although Brazil contains enormous quantities of minerals of various kinds, the only three varieties extensively mined at present are manganese, gold, and diamonds.

MANGANESE INDUSTRY.

Manganese has taken the lead by a very large margin, the exports of this metal (largely because of the war) having expanded by leaps and bounds. During the first six months of 1917, 245,088 tons were exported, valued at approximately \$5,500,000. During the calendar year 1916 503,000 tons were exported, valued at \$7,084,954. For the first six months of 1914 shipments of manganese totaled 85,500 tons, valued at approximately \$600,000. The total exports from Rio de Janeiro during 1914, 1915, and 1916 amounted to 144,734, 309,886, and 432,435 tons.

The manganese mines are variously located in the States of Minas Geraes, Matto Grosso, Bahia, and elsewhere, the deposits located in

Minas occupying a position of considerable importance, owing to their accessibility to the port of Rio de Janeiro. The ore reserves are very large, the Urucum deposit in Matto Grosso containing, it is estimated, 30,000,000 tons of undeveloped ore, the Quelez deposits in Minas Geraes containing 5,000,000 tons, and other developed and undeveloped properties large amounts.

The average composition of the dry Brazilian ore is: Metallic manganese, 52 to 53 per cent; iron, 3 to 3½ per cent; silica, 1½ to 2 per cent; phosphorus, 0.03 to 0.04 per cent.

American interests have recently entered the Brazilian manganese field. Most of the remaining capital invested is of local origin.

The transportation of manganese ore has proved a remunerative source of income to the Government's Central of Brazil Railway.

The Quelez ore deposit of which mention has been made is located about 300 miles from Rio de Janeiro, while the Urucum deposit, in Matto Grosso, is about 18 miles from Corumba, the head of navigation of the Paraguay River, and is no great distance from the Northwestern of Brazil Railway. One of the deposits in the State of Bahia is at Villa Nova, about 300 miles from the port bearing the same name, while another deposit is located at Nazareth, only a few miles from the city. The Miguel Burnier deposit in Minas Geraes, which is in limestone, is said to be 6 miles in length running from east to west. Extraction costs at this mine exceed costs at the Quelez and other deposits.

The future of the manganese industry is assured, provided better transportation facilities are secured. The ore from the mines at Nazareth, Bahia, which are under American management, has to be taken by lighter to the port of Bahia and there transhipped for America or Europe. The insufficient number of lighters and ships is greatly curtailing the production of this mine, while lack of railways and good roads prevents the expansion of those in the interior.

GOLD MINING.

Gold, the mineral that served as a magnet to attract early settlers to Brazil, is found in many of the States. There are two important mines now in operation, both under British ownership and management. These are worked by the St. John del Rey Mining Co. (Ltd.) and the Ouro Preto Gold Mines of Brazil (Ltd.). The St. John del Rey mine is located at Villa Nova de Lima, State of Minas Geraes, and is a very old property, having been worked since the year 1830. Between 1835 and 1862 the production of the mine was 59,098,654 troy pounds of gold valued at approximately \$11,000,000. In 1849, 69,446 tons of ore were produced and the results from crushings were £38,136 profits. In 1865 the profits were £80,438 and the production 78,883 tons. In 1886 a cave-in made it impossible to operate the mine. The property was reconstructed in 1887, and the present company was registered July 24, 1888. The capitalization consists of £100,000 10 per cent noncumulative first preference stock, £100,000 10 per cent noncumulative second preference stock (unissued), and £546,265 ordinary stock (£600,000 authorized); £1,800 7 per cent bonds matured March, 1918. The par value of shares is £1. Full dividends of 10 per cent per annum have been paid on the preference stock, and during recent years the rates on the ordi-

nary stock have been: 1903-4 and 1904-5, 5 per cent; 1905-6, 2.92 per cent; 1906-7, $2\frac{1}{2}$ per cent; 1907-8, 5 per cent; 1908-9, 6.67 per cent; 1909-10, 8.33 per cent; 1910-11, 9.17 per cent; 1911-12 to 1916, 10 per cent per annum.

The production of this mine from 1837 to the caving in of the shaft in 1886 was $58\frac{1}{2}$ tons of refined gold. The property employs from 800 to 1,000 workers and supports a population of nearly 10,000. During a recent year 192,600 tons of ore were treated and 1,145,788 oitavos of gold produced (1 oitavo equals 3.586 grams), an average of 6.438 oitavos per ton. The percentage of the gold contents of the ore recovered was 92.40. The depth of the shaft thus far driven exceeds 1 mile, and the property is still far from being exhausted.

The report of the company for the year ended February 28, 1917, stated that since March 1, 1901, the sum of £567,283 had been taken out of profits for capital works and redemption of bonds. The total value of assets of the company was stated as £1,507,492. The gross receipts from operation for the year ended February 28, 1917, were £450,280 and the operating and development expenses were £291,096, the balance of profits being £159,185. Including other income the total net receipts were £172,387 and the surplus £132,637. Of this total sum, £50,000 was transferred to capital works account and £10,000 to reserve fund. After transferring these sums and after paying the 10 per cent dividend on the outstanding stocks and £800 donated to war funds, there was carried forward the sum of £4,057.

The tonnage crushed at the mill during 1916-17 was 187,400, the amount realized averaging 50s. $3\frac{1}{2}$ d. per ton. The decrease in tonnage crushed as compared with 1915-16 was 5,100, the loss in tonnage being offset by the production of a larger percentage of gold.

A quotation of 17s. 9d. for the £1 ordinary shares, as of January, 1918, compares with an approximate price of 16s. at the closing of the London Stock Exchange, July 27, 1914. The preference shares (£1) were quoted 25s. 6d. January, 1918.

The Ouro Preto Gold Mines of Brazil, an Anglo-French company, operates the Passagem mine, located about 5 miles from Ouro Preto, Province of Minas Geraes. The property is an old one, having been worked at the commencement of the nineteenth century. The present company was incorporated in 1914, as a reconstruction of a company with a similar name, registered 1893. There are £60,000 10 per cent and participating preference shares outstanding, which rank *pari passu* with the £40,000 ordinary shares for dividends in excess of 10 per cent. The amount of gold produced in 1914 was £114,569; in 1915, £120,591; and in 1916 slightly more than £120,000.

The first stamp mill placed in operation in Brazil (1819) was used at this mine. The average thickness of the ore lode was for many years 3 meters, but this has since narrowed to about $2\frac{1}{2}$ meters. The ore is crushed to pass through 30 mesh screenings, and about 12 tons of water are used to 1 of ore. Complete treatment takes three days. The company owns an electric plant, which furnishes light to the surface workings and buildings and to the village of Marianna. About 1,000 men are usually employed. The company was recently stated to have options on the Maquine and Santa Ana mines located near the Passagem mine, both properties being believed to hold considerable promise.

There are several other British and French companies engaged in gold mining, none of which have as yet attained the results shown by the St. John del Rey and Ouro Preto properties. There are a number of small properties that are now being worked or have been in the past, and considerable additional development is expected to follow the improvement in the transportation systems of the Republic. The Congo Socco mine in the Itabira district may be mentioned as important among the earlier producers.

Concerning gold deposits in Brazil, a recent review in the London Times stated as follows:

In nearly all States of Brazil gold has been discovered and is being extracted. The important auriferous lodes in Brazil are grouped around three mountain chains, which, so to speak, form the skeleton of the country.

The Mantiqueira chain, which comes from the State of São Paulo and is detached from the Espinhaco chain, which crosses the State of Minas from north to south, penetrates into the State of Bahia and ends in that of Pernambuco. In the second place, the watershed which separates the waters of the River São Francisco from those of the River Plate serves as a boundary between the States of Minas and Goyaz, and continues into the State of Piauhy and ends in that of Ceara. A third line extends along the right of the Rivers Paraguay and Araguay. It is to the latter that the chain of Parecis in the State of Matto Grosso belongs.

The most worked mines are those of the Espinhaco chain; they are grouped along a straight meridian line running from the town of Barabacena, in the State of Minas, to Jacobina, in the State of Bahia, over an expanse of more than 1,200 kilometers (746 miles). The principal areas under active operation comprise Morro Velho (see St. John del Rey mines), which is very prosperous; Passagem (See Ouro Preto mines), which is meeting with success; São Bento, which possesses modern installations for cyanidation; São Luiz, which has a similar equipment; and Descoberto, which is a new field, the extracting of gold having commenced in 1903. The Morro Velho mine (see St. John del Rey mines) is one of the principal gold mines of Brazil, and from 1837 to 1886 it produced 58½ tons of refined gold.

A considerable amount of dredging work has been carried on in the past with varied success, a number of the dredging companies having been very much overcapitalized. It was estimated before the outbreak of the war that a capital of about \$160,000 was sufficient for each dredge employed. Two grains of gold, it was estimated, should be saved to each cubic yard dredged, and the cost of operating a dredge of 3 to 5 foot capacity per bucket, working 120 hours per week, should not be much in excess of \$1,200 per month. An extraction of 80 cubic yards per hour ought to produce a profit of nearly \$20,000 per annum.

COPPER MINING.

Copper exists in numerous sections of Brazil, although the present production is very small. A number of sporadic attempts have been made to develop some of the ore bodies, without great success during recent years; nevertheless, the future of this branch of the mining industry holds considerable promise.

A mass of native copper weighing more than 2,600 pounds was discovered a number of years ago near the city of Bahia. The State of Bahia contains many known deposits of copper, and many of the deposits, it is said, might undoubtedly be developed successfully. Among the known copper districts of Bahia are the following: (1) Along the Verde River, not far from the boundary with Minas Geraes; (2) at Condeuba, in the southern part of the State; (3) at Maracas, in the south-central part of the State; (4) the Carahyba

mines at Praba, Jaguary district, in the north; (5) at Patemute, in the north; (6) at Jacobina, in the central districts; also at Curaca, near Bahia, at Chapa del Velho in the west, and elsewhere.

The State of Rio Grande do Sul in the far south of the Republic also holds considerable promise. Well-organized attempts have been made in this State to mine and smelt the copper. An extensive property was opened up in this State a few years ago, this being located at Camaquam, about 2 miles from the river of that name and about 50 miles from Rio Negro, a station on the Brazil Great Southern Railway. This property, on the average, gave assays of about 6.5 per cent copper and 30 grams of gold per metric ton. At Caca-pava, in this State, several properties of moderate size have been developed with unknown results. Other small mines variously located have also been worked in a small way.

The State of Minas Geraes, which has thus far proved the most important mining district in the Republic, will probably rank next to Rio Grande do Sul and Bahia as a future producer of copper. Deposits have been located at Lavras, where a certain amount of development has been carried on with varying success; also near Ouro Preto, one of the important towns of the State. Other outcroppings of the mineral have also been discovered, these being variously located.

Not far from Campos, an important city on the Leopoldina Railway, in the State of Rio de Janeiro, copper ore has been located in promising quantities. There is also a deposit near São João da Barra.

In Ceara, Goyaz, Matto Grosso, Parana, and Rio Grande do Norte, ore deposits, more or less promising, have been located. In Maranhão, within the municipality of Chapado, an ore body of some size has been located. In São Paulo several attempts have been made to develop copper deposits in the mountains, but presumably all of the mines, which were mostly small, have been abandoned, inasmuch as the copper was found to occur only in small pocketlike veins. In the far interior of the State there are traces of copper, but the quality of the ore deposits is unknown.

Many of the ore bodies already discovered are located at considerable distances from railways and rivers and are not readily accessible owing to the absence of roads and other means of conveyance. It is probable, however, as the development of this great Republic is carried forward, that copper mining will take a high place among the nation's industries and that the annual value of its production will be surpassed only by manganese, gold, and diamonds.

The Carahyba Copper Mine (Minas de Cobre de Carahyba), located at Praba, Jaguary, State of Bahia, of which mention has previously been made, was originally opened in 1783. The mining property covers 6,000 hectares (14,826 acres) and is about 30 miles from a railroad. The mine has been worked at intervals, and a smelter was at one time constructed on the property. In 1903 a British concern carried on a certain amount of work at the mine but subsequently abandoned it. It is said that, although the area of this property is considerable, the depth of the ore bodies has never been accurately determined.

The Société des Mines de Cuivre du Camaquam was organized in Belgium during 1899 to work the mines at Camaquam, in the State of

Rio Grande do Sul. The capitalization of this company was 1,900,000 francs, in shares of 500 francs par, as well as 250,000 francs debentures. The equipment of this company included a mining plant of fair size and importance, with a hydroelectric installation. Water power, it was found, was sufficient to run the company's 80-ton mill the whole year round. A small smelter was erected. In the year 1907 the production of copper was about 2,000,000 pounds. It is said that operations were later suspended. The head office of this company was at Brussels, Belgium.

A French company known as the Société Anonyme des Mines de Cuivre du Seibal, organized in Paris in 1903, with a capitalization of 415,000 francs, also formerly operated at Camaquã. Its property, located not far from the Belgian property just described, carries gold, silver, and copper. Although a fair sum was spent in development work, the property is presumed to have been abandoned by the company and was, at last accounts, idle.

DIAMOND MINING.

The diamond-mining industry of Brazil dates from the year 1721, when the first stone was discovered by a gold miner named Bernardo da Fonseca Lobo. The Government took prompt steps to develop the industry, and within 10 years of the date of discovery between 35,000 and 40,000 men were at work in the diamond fields. The exportation of the precious stones during the 40-year period 1732-1771 totaled 1,666,569 carats valued at not less than \$17,500,000.

Among the various diamond fields that of Diamantina is one of the most important and widely known. The city of Diamantina, located in the State of Minas, about 500 miles from Rio de Janeiro, has a population of about 15,000 and is the center of the district. Within the district are the headwaters of the rivers Arassuahy, Doce, and Jequitinhonha, and the area is filled with deep ravines with numerous small streams, which become swollen and even turbulent during the rainy seasons, working out potholes in their beds in which diamonds are most likely to be found. About 70 years ago one of these potholes was found to contain diamonds weighing a total of 10 pounds and about 28 pounds of gold. The gems are also found in the ranges in a sort of bluish clay deposit, in beds of various thicknesses, interstratified through a great mass of multicolored clays, stained by oxides and organic matter. The rocks in which these deposits exist consist of sandstone and schist.

Other diamond deposits in Minas Geraes are at Grão Mogul (Grand Mogul), about 100 miles north of Diamantina (discovered 1771); at São João de Chapida, 13 miles from Diamantina; at Boa Vista, Serrinha Bagagem (Estrella do Sul), etc. Bagagem is located 250 miles from Diamantina, near the boundary with the State of São Paulo. In the river bearing a similar name and near the place mentioned, there were discovered three famous diamonds—(1) the Estrella do Sul, found in 1853, which weighed 254.5 carats uncut and 125.5 carats cut; (2) the diamond of Dresden (year 1857), weighing 117.5 carats uncut and 76.5 carats cut; and (3) the Estrella de Minas, weighing 175 carats. The diamond that was given the name of Estrella do Sul was sold to the Gaekwar of Baroda for

£80,000, while the Dresden stone realized £40,000 and was purchased by the same Eastern ruler.

In addition to the various diamond fields of Minas Geraes, stones have been located in Parana, Bahia, Goyaz, Matto Grosso, and São Paulo. The Parana deposits are found in various rivers, including the Yapo and the Tipagy. The gems found in this State usually run small but are of excellent quality. The Bahia fields extend from Sincora on the south to Morro do Chepeu on the north and cover a considerable area. Several years ago a somewhat extensive discovery of the gems was made at Itapicuru, in Bahia, this new field holding considerable promise. In Goyaz the discoveries were of recent date and were principally in the Graca River, which is a tributary of the Araguaya. In 1906 a stone of 600 carats was located in the Verissimo River in the southern part of the State, but was partly destroyed by being tested on an anvil with a heavy hammer and split into small fragments. The Matto Grosso diamonds are found mostly in Coxipo Mirim River and are generally small, the largest found being about 5 carats. A number of dredges have from time to time worked this district with varying success. The São Paulo diamond field is a continuation of the Minas Geraes fluvial deposits, and the stones are found mostly in the rivers Sapucahy-Mirim and Verde. These deposits have not as yet assumed great importance.

Statistics concerning diamond production in Brazil are almost impossible to obtain. It is said, however, that more than 4 tons of the gems have been obtained during the two centuries since their original discovery in the Republic. Up to 1771, as stated, production totaled about \$17,500,000, and from that year until 1850 approximately \$35,000,000. Later figures are based wholly on estimates. There is a certain amount of mystery concerning production and exports, and it is commonly said that many so-called Cape diamonds on the European markets originated in Brazil.

IRON ORE.

Brazil probably contains the richest and largest undeveloped iron-ore deposits in the world. Iron exists, it is said, in every State in Brazil. The deposits existing in the State of Minas Geraes are so vast that they consist often of actual mountains, and cover, it is estimated, 247,000,000 cubic meters. The quantity of the ore thus far surveyed, existing in 52 outcroppings in Minas Geraes, is estimated by Government engineers to total as high as 12,000,000,000 tons of the highest grade.

Iron was discovered in Brazil in 1589 by a Paulist priest. In 1600 a foundry was established at Ipanema, State of São Paulo, this being, it is said, the first iron foundry to work in the Western Hemisphere. This establishment was closed down in 1620, reopened at various times, and enlarged in 1810, working from that year almost continuously until about 1895. Its production during that period averaged from 3 to 4 tons daily.

A number of the iron deposits have been acquired by American, British, French, and German interests. Among the interests controlling these properties are a number of iron-ore operators from Minnesota and Wisconsin, the St. John del Rey Mining Co. (see "Gold mining"), and the Itabira Iron Ore Co. (British). The St.

John del Rey Mining Co. owns 90,886 acres of property containing iron ore. Mr. Chalmers, the present manager of the company, stated in the stockholders' report for 1912 (on file at the Bureau of Foreign and Domestic Commerce, Washington) that one can travel for 23 miles in one direction and for 16 in another direction on outcrops of ore, canga, or rubble. In one deposit the surface ore in sight is 30,000,000 tons of 60 per cent pure ore; and it may safely be estimated that the tonnage would total 160,000,000. This deposit is one of a number on the property. The assays from 570 samples tested by Mr. Chalmers averaged 67.3 per cent iron and 0.053 per cent phosphorus. These ore deposits have thus far not been developed, but may be said to be of considerable importance.

The American interests controlling properties in Brazil have incorporated as the Brazilian Iron & Steel Co. Their ore deposits are located in the eastern part of the district near the headwaters of the Doce River.

The iron-ore district of Minas is northward from Rio de Janeiro and is reached by the Central of Brazil Railway and by the Leopoldina Railway. A line from the port of Victoria will also tap a portion of the field. The altitude of the iron district varies from 2,000 to 6,000 feet, and the climate is generally good. Owing to the uneven character of the country, railway traffic is at present limited. Wagon roads are almost unknown, and the only facilities for travel, aside from the railroads, are the few rough mule trails.

Concerning the iron ores of Minas Geraes, the following excerpt from an article by E. C. Harder, "The Iron Deposits of Brazil," which appeared in the *South American* for May, 1917, may be of interest:

The iron ores of Minas Geraes are associated with a series of ancient-folded and metamorphosed sedimentary rocks. One of the beds composing this sedimentary series is an iron-bearing quartzite called itabirite, and in this are found the principal iron-ore deposits. The rock beds are complexly folded, so that in many places they stand on end, and the outcropping belts of the iron-bearing quartzite wind back and forth through the district over an area about 60 miles wide east and west and more than 100 miles long. Throughout this region iron-ore deposits of more or less importance occur along the belts of iron-bearing quartzite, the principal ores being found as lenses interlayered with the quartzite. Such lenses of ore range up to more than 2 miles in length and up to several thousand feet in thickness, although bodies of this size are exceptional. Some lenses consist of pure, hard hematite; others of soft, powdery hematite; and others of soft hematite with more or less intermixed sandy or clay material. The hard ores crop out prominently, in many instances forming the summits of mountains or ridges that are landmarks for miles around. The soft ores usually do not show on the surface.

The disintegration and breaking up of the iron-bearing quartzite and ore by erosion results in the formation of a hard surface crust of ore of varying thickness over most of the ore-bearing areas. This is due in part to the removal of impurities by surface waters, leaving the iron oxide more concentrated, and in part to the mechanical accumulation of blocks and particles of iron ore on the lower slopes of ridges. Iron oxide cements the loose materials into compact blanket deposits known as "canga." The canga covers large areas and in places varies up to 50 feet in thickness. Only low brush grows on it because of its hardness, and thus iron-bearing areas throughout the district are commonly barren of trees and but sparsely covered with other vegetation.

Thus far the development in the iron fields has been extremely slow. High costs of coal and other fuel that might fill requirements have prevented the operation of smelters of sufficient size to warrant the investment of capital in them. As will be indicated in a later

paragraph, coal exists in Brazil, but thus far its quality is hardly good enough or its supply sufficient to be of use in the iron industry. Oil fields are being prospected, and there is a possibility that sufficient petroleum may in time be obtained to run the smelters. There is a likelihood that electric smelting may come into use. Some experiments have proved that this is practicable. It seems probable, however, that most of the ore will, for a time, have to be sent to foreign markets for smelting. Lack of fuel supply and a scarcity of ships for transportation purposes, coupled with insufficient railway facilities, are thus the cause of the slow development in the iron industry. The war and the consequent high prices obtainable for the ore may, however, bring about a great expansion in the industry at an early date. Estimates of the quantity of ore existing in Minas vary from 2,500,000,000 tons to 12,000,000,000 tons, the latter estimate, as stated, being by Government engineers.

There is a large quantity of iron in the State of Parana. A deposit has been located at Bom Retiro do Mundo Novo (Antonina), about 3 miles from the Atlantic, a near-by port being accessible to vessels of about 300 tons. About 6,000,000 tons of ore have here been located. A large deposit also exists in the interior of Bahia, and one of the extensions of the Bahia Railway system was surveyed with the idea of developing this iron-ore body, which is extremely large and rich. In the various States of southern Brazil, including Rio Grande do Sul and Santa Catharina, considerable ore bodies have been located, and these hold promise of successful development following the investment of capital. Some of these iron bodies have been mined and smelted, but only in the most primitive way, by means of a few small charcoal furnaces.

COAL MINING.

The presence of coal has long been known in Brazil and the product has long been mined in a somewhat primitive way. Recently, however, the rising cost and the difficulty of obtaining the mineral from Europe and the United States have caused renewed interest in the development of the local mines. The principal coal deposits exist at Tuberão, in the State of Santa Catharina, and at Xarquedeas (São Jeronymo Railway & Mining Co.), Candiota, Rio Negro, and Jaguarão in the State of Rio Grande do Sul. Deposits of considerable size and probable importance have also been located at Quixambinha, in Pernambuco, in the State of Parana, and elsewhere. Lignite occurs in Minas Geraes, and peat has been found in various States.

American interests have recently made extensive purchases of coal lands in the State of Parana and are expected to develop the properties extensively.

The veins of coal at Tuberão attain a thickness of about 10 feet, while those at Xarquedeas reach a thickness of about 13 feet. The Candiota seams vary in thickness from 4 to 10 feet. The São Jeronymo Co.'s property at Xarquedeas has been in active operation for some years and produces upward of 20,000 tons of coal per annum.

According to a report by Vice Consul Richard P. Momsen, dated March 12, 1918, in Rio Grande do Sul the greatest activity is seen at the São Jeronymo mines. At present two shafts are open and in operation, of which the oldest (Fraternidade) produces from 300

to 350 tons daily, while the newer mine (Concordia) with a constantly increasing tonnage was yielding 270 tons daily in January. The average daily production of the two mines in March, 1918, was about 650 tons per day. A third shaft was then being sunk, which should increase the daily production to between 1,000 and 1,200 tons. Being high in volatile matter, this coal produces good gas and salable coke for the city of Pelotas. Orders have been placed for compressed-air drills to increase the production.

At Jacuhy the mine reached a depth of 60 meters in January, 1918, and it was expected that by July the production would reach between 6,000 and 12,000 tons per month, to be increased still further by the end of the year. The company expects to be able to offer its coal at sufficiently low prices to compete with foreign coal after the war.

In the Jaguarão River valley near Rio Negro, Candiota, and Santa Rosa coal operations are being initiated. This coal is sold at from 15 to 20 milreis (about \$3.75 to \$5) per ton at the place of extraction, while that of the São Jeronymo mines is bringing 60 milreis (about \$15) per ton after having been transported from the mines to Pelotas and the port of Rio Grande. The latter is a deep-mined coal, while the former is said to be a surface coal and of poorer quality.

In the valley of the Jacuhy River there is abundant evidence of outcroppings which promise further discoveries of new deposits.

The principal coal fields in the State of Santa Catharina, Vice Consul Momsen says, are in the valleys of the Tuberão, Mao-Luzia, Ronco d'Agua, and Urussanga Rivers. The firm of Lage Irmãos, in the Tuberão District, is rapidly developing its properties, but is handicapped in railroad construction by lack of rails. The daily production varies from 60 to 70 tons and is chiefly transported by oxen. With sufficient railroad facilities the production of these mines should be from 300 to 400 tons per day. At Barra Branco, Ponte Alto, and Crissiuma operations are steadily progressing, but the chief obstacle is lack of transportation facilities. At the latter mine special care is taken to free the coal from impurities under the direction of the eminent engineer, David Draper, whose name is associated with the African diamond discoveries. In other parts of the State surveys of coal deposits are being made; and if the war and the present freight stringencies continue, making British and American coal not only expensive but practically unobtainable, the Brazilian coal industry will have received sufficient impulse to have created another permanent domestic source of wealth, and it will, partly at least, have a tendency to alleviate the fuel shortage, which has to a great extent impeded the progress and expansion of the manufacturing industries of the country. The principal difficulty in extending the use of Brazilian coal is inadequate water transportation and the high cost of hauling by either overland or water routes.

Vice Consul Momsen is informed that the Viação Ferrea Rio Grande do Sul Railway is burning Brazilian coal in its locomotives—mixed with wood. It appears that this company has just made a contract for 24,000 tons of native coal for the current year.

Brazilian engineers have always been hopeful that discoveries of iron deposits sufficiently near the coal-bearing areas to permit the establishment of an iron and steel industry in the country might be made. Thus far investigations have not revealed any discoveries of sufficient importance to indicate the possibility of coordinating these

two mining operations. The rich deposits of iron ore found in unlimited quantities in the State of Minas Geraes are, at least under present transportation conditions, too far from the sources of coal to make possible a practical utilization of these minerals in an extensive iron and steel industry in Brazil.

The Government is fully alive to the coal situation in Brazil and is lending its aid to the development of the mineral beds. Recently the President authorized the construction of a railway to develop important coal fields and authorized the Government to raise approximately \$7,500,000 of 5 per cent bonds with which to aid coal companies by subscribing to their capital obligations. It was also agreed to exempt such companies from customs duties, grant reduced rates on State railways, etc. It is claimed that the results of analysis of briquettes made from Santa Catharina coal indicate that the caloric value is little less than that of Welsh patent fuel. A large amount of this fuel is used by the Lloyd Brasileiro and other steamship lines (including the Japanese Line), by railways, mills, etc. A small amount is annually exported to Argentina and Uruguay.

PLATINUM.

Platinum has been discovered in several localities in the Republic, including the States of Pernambuco, Parahyba do Norte, and Minas Geraes, existing in gold-bearing quartz among crystalline schists, in the alluvium of rivers, and elsewhere.

NICKEL.

Nickel has been located in Santa Catharina, Rio Grande do Sul, and Minas Geraes (at Ayurvuca). Thus far little or no development has been carried on, but it is claimed that the ore beds are of sufficient size and importance to warrant an exhaustive investigation. The deposit in Rio Grande do Sul is located near São Luiz.

SALT.

Salt exists in the State of Rio Grande do Norte, in Macao and Mossoro. This salt is shipped to various sections of the Republic. There is a small salt works at Cabo Frio, in the State of Rio de Janeiro, the products of which are used locally. Salt pans also exist in the State of Minas, and, it is stated, the industry is capable of considerable development. The production of the various salt deposits is only a fraction of what might be obtained, and the Republic is at present a large importer of the product.

MONAZITIC SANDS.

Brazil contains probably a larger quantity of monazitic sands than all the rest of the world. Formerly Austria, and later Germany, were large purchasers of sand, the latter in 1910 importing 15,665 tons, valued at approximately \$1,000,000. The deposits extend along the coast northward from Rio de Janeiro and are also found on the banks of various rivers, in the States of Bahia, Rio de Janeiro, Minas Geraes, and Espirito Santo. The product is used largely in the manufacture of gas mantles (incandescent) and has considerable value. The thorium that the sands contain and that is used in the

gas-mantle industry is extracted before exportation, several factories existing in the Republic for this purpose. The percentage of the thorium in the sands is about 1 to 50. Some deposits of this sand have been found from which as high an average as 5.72 per cent of the thorium has been obtained. In the event that other uses than the manufacture of gas mantles should be found for the monazitic sands, the product would doubtless greatly increase in value.

GRAPHITE.

Graphite occurs in several Brazilian States, principally, however, in Minas Geraes and Bahia. A number of deposits have been located, many of which are at present inaccessible, owing to lack of transportation facilities. A deposit existing at São Fidelis, State of Rio de Janeiro, is being worked extensively and the product used by a pencil factory located at Rio de Janeiro. One or two other deposits are also being worked in a small way, the product being used wholly in local markets. The industry will probably expand considerably in the future, following the improvement in transportation facilities.

OTHER MINERALS AND PRECIOUS STONES.

In addition to the various minerals heretofore described, the vast Republic of Brazil is a storehouse of numerous other varieties of minerals and precious stones. Among these may be briefly mentioned the following:

Asbestos.—Exists in the Serra da Estrella, in the State of Rio de Janeiro, in the State of Bahia, and elsewhere in the Republic.

Antimony and tin.—Small quantities of these minerals have been discovered in the Republic, stream tin existing in a concentrated form in the Paraopeba River, State of Minas Geraes.

Bismuth.—Exists in the State of Rio Grande do Sul.

Barium.—Found in various localities in the State of Minas Geraes.

Cinnabar.—Has been discovered in various sections of the State of Minas Geraes, although not in large quantities.

Emery.—This has been found in various places in the State of São Paulo, the largest and most important deposit being located at Matta do Paiol, a station on the Sorocabana Railway, about 35 miles from the city of São Paulo.

Kaolin.—A number of large deposits of kaolin have been located, principally in the States of Rio Grande do Sul, Rio de Janeiro, Bahia, and Minas Geraes. A quantity of the product shipped from Rio Grande do Sul to Limoges, in France, was pronounced equal to the best obtained from Japan, and there are prospects that this deposit will be extensively developed and porcelain ware manufactured in Brazil. At last accounts this property was held by French interests. At Vassouras, a station in the State of Rio de Janeiro, a quantity of kaolin exists, one mass alone containing 200,000 tons.

Marble.—Exists in the States of Rio de Janeiro, Minas Geraes, São Paulo, Parana, and elsewhere; is quarried extensively in Minas, the colors being white, rose, and onyx. Green, rose, and pure white are the prevailing colors in Parana.

Mica.—Goyaz, Minas, Bahia, São Paulo, and Rio de Janeiro each contain deposits of mica—some extensive. A small quantity is usu-

ally exported, mostly from Santa Lucia de Carangola, State of Minas. That found in the State of Goyaz is considered of the best quality.

Molybdenite.—Variously located; principally in Parana.

Saltpeter.—Found in small quantities in Minas Geraes and São Paulo. The Brazilian deposits are not likely to attain commercial importance.

Silver and silver-lead.—In the State of São Paulo lead has been located and its quality tested. About 500 grams of silver were obtained from 100 kilos of lead in certain samples. Experiments on the average quartz showed 50.4 per cent lead and 0.595 per cent silver. These experiments were made at Apiahy. Other deposits exist at Iporanga, in the same State, and elsewhere in the Republic. Silver ore has been discovered in the mountains of the State of Parana.

Soapstone and talc.—These exist in the State of Minas and elsewhere and have been exploited for local use to a considerable extent.

Wolfram.—Found in fair quantities in Rio Grande do Sul (at Encrusilhada). The proportion of tungstic acid obtained in the quartz is said to be about 40 per cent.

Among the precious and semiprecious stones, other than diamonds, found in various parts of Brazil there may be mentioned garnets, opals, pearls, rock crystals, rubies, sapphires, topazes, and tourmalines. One or two emeralds have been discovered, but there are no evidences of any quantities existing. The garnets that have been obtained are usually small in size, rarely exceeding a few carats in weight. Opals are also generally small and are of no great value; they are found in Minas Geraes. Many fine pearls have been discovered in the numerous rivers of the Republic, but no systematic attempt has been made to obtain them. The largest number thus far obtained have been found in the Araguaya River, in Goyaz; these are mostly small fresh-water pearls of various colors. Rock crystal, which can hardly be classed as a "precious stone," is quite common in Brazil, and before the war was exported in fair quantities, mostly to Germany. Its local pre-war market value was about 50 cents a pound. Rubies are exceedingly rare, and probably not more than a dozen gems of good quality have thus far been obtained. Ruby corundum of a massive form is found in São Paulo.

The topaz industry was once of some importance in Brazil, but has been continuously on the decline for the past quarter of a century and is now of little importance. At Rodrigo Silva, near Ouro Preto, a mine was worked during recent years, and in 1912 about 200 kilos of stones were obtained, scarcely any of which were flawless. The depth of the shaft at this time is about 100 feet. Numerous additional finds of the gems have been made in various localities, including the Ilha Grande, near Rio de Janeiro, at Olinda in Pernambuco, in Rio Grande do Sul, in the Tibagy River, State of Parana, and elsewhere.

Tourmalines exist in the northeastern part of the State of Minas and have been systematically mined and exported during the past 15 years. Most of the trade in these stones has in the past been handled by Germans. The stones are frequently found in cascalho in the forest regions, generally at a depth of 2 to 3 feet below the surface. They are valuable and prior to the war enjoyed a fair market in

Europe. Large clear gems were quoted a few years ago at \$500 a kilo and small stones as high as \$200 a kilo.

Sapphires are found in fair quantities but, as a rule, are not of superior quality.

In addition to the gems and valuable stones and crystals heretofore mentioned, there are numerous other varieties, more or less valuable, existing within the Republic.

There is no question that Brazil is a treasure house of developed and undeveloped (mostly the latter) mineral wealth. As has been shown, the State of Minas Geraes has taken the lead in the mining industry and contains within its boundaries almost every known variety of ores and gems. There are said to be good openings for well-organized and honestly and efficiently managed mining companies provided with sufficient working capital and having an understanding of local conditions. A very large proportion of the river gravels in the mineral zones have been either only partly explored or totally unexplored and are believed to contain enough gold to warrant the hope of substantial returns from dredging enterprises. The laws of the Republic governing mines and mining are just and equitable, and the Government is willing to lend its aid and give encouragement to the industry.

PETROLEUM DEPOSITS.

Petroleum is known to exist in the Republic of Brazil, but whether or not in commercial quantities is a problem remaining to be solved. Discoveries of oil have been made in several States, including São Paulo (at Ibitinga and Taubate), Bahia, Minas, and Alagoas, and traces have been found elsewhere. It is also generally believed that the deposits existing in the southeastern section of Colombia extend into northwestern Brazil—a region, however, somewhat remote from routes of traffic.

Explorations in the State of Bahia have brought to light a number of petroliferous springs, yielding small quantities of an excellent grade of oil, but thus far no active development has taken place.

Concerning oil in Brazil, Mr. Ralph Arnold, in a paper entitled "Conservation of the Oil and Gas Resources of the Americas," in *Economic Geology* (1916), says:

The oil shales are of Eocene age and extend intermittently from Porto Alegre (on the south) along the coast for over 1,200 miles, nearly to the mouth of the Amazon. Portions of the shales suitable for distillation have been reported at the following, among other, localities: North of Ilheos, on the Itahipe River; on the island of João Thanis, in the Marahu River, 80 miles south of Bahia; on Tinhara Island, 30 miles south of Bahia; at Riachadoce and Cama Rajibe, 25 and 45 miles, respectively, north of Maceio; in the Province of Alagoas; and in the Sierra de Araripe, in the State of Ceara.

Various geologists have given their opinions concerning the extent of the possible oil wealth of Brazil. These opinions have differed widely. As stated, little is known concerning the possible future of the industry, although much is hoped for.

AGRICULTURE.

COFFEE.

Coffee is by far the most important crop and the chief source of wealth of southern Brazil. It is grown over vast areas of the States of São Paulo, Rio de Janeiro, Minas Geraes, and Espirito Santo.

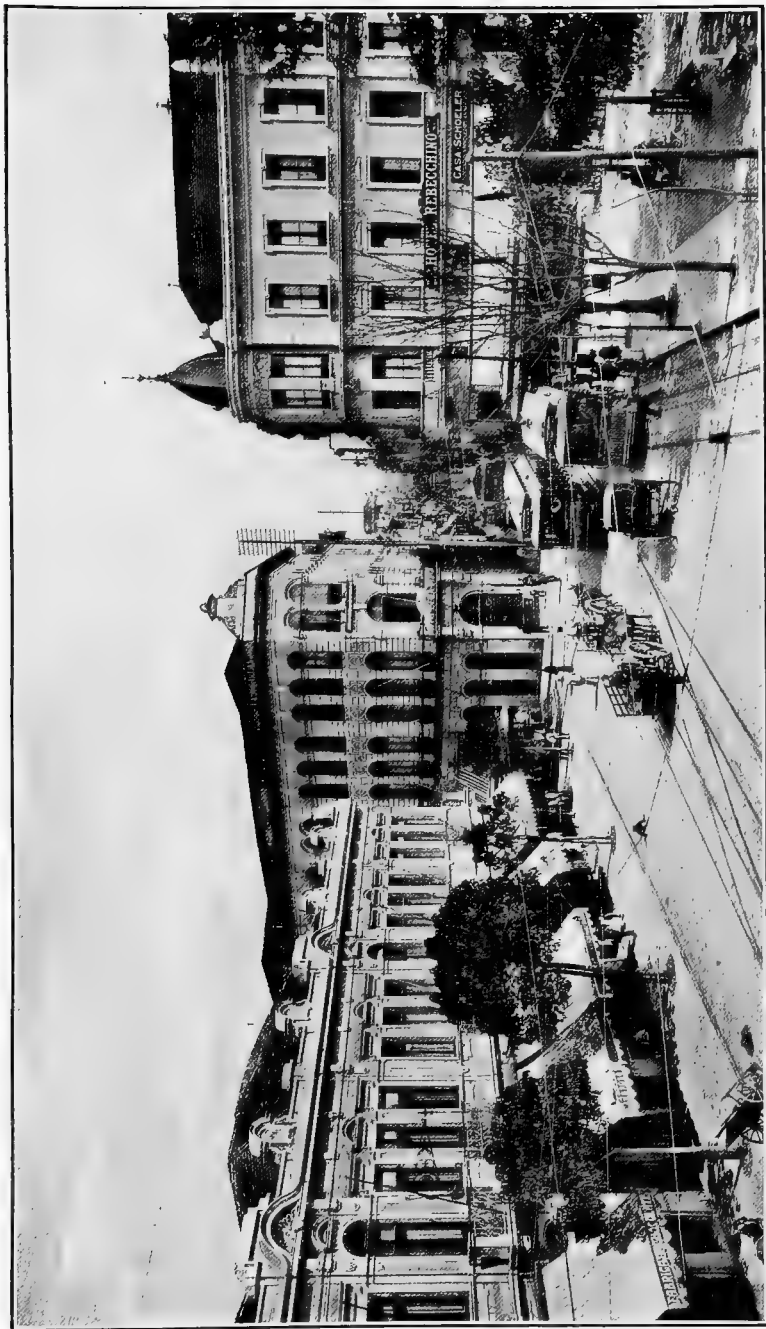


FIG. 12.—STREET SCENE IN SÃO PAULO, BRAZIL.

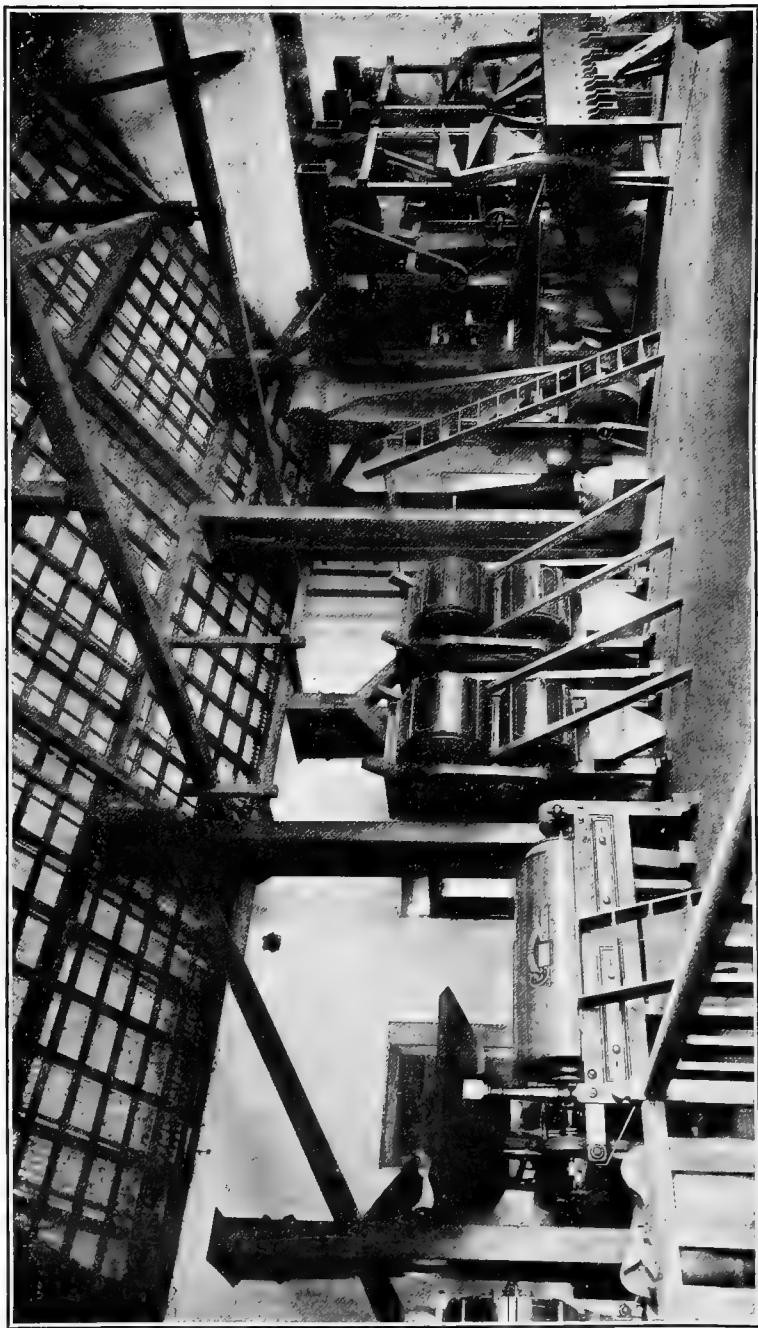


FIG. 13.—COFFEE-CLEANING PLANT, BRAZIL.

There are, it was recently stated, 1,400,000,000 coffee trees in the Republic, of which 750,000,000 are in the State of São Paulo. The total number of farms in São Paulo planted with coffee trees is estimated at 60,500. Probably more than \$1,500,000,000 is invested in coffee plantations in Brazil, São Paulo's share of this total approaching \$900,000,000. From two-thirds to three-quarters or more of the coffee consumed in the entire world is produced in Brazil, the São Paulo Railway carrying through São Paulo to Santos for shipment in 1915 no less than 13,444,756 sacks of 60 kilos (132 pounds) each, this representing almost the entire exported production of São Paulo and large quantities from neighboring States. The Brazilian crop for 1916-17 was estimated at 13,500,000 bags (15,742,000 in 1915-16) and that of the rest of the world at 4,500,000 bags. The coffee exports of Santos for 1915 were valued at \$113,424,679, and the average value for the 10 years 1906-1915 was \$120,000,000. There was a slight increase in 1916 in the total value of coffee exported, the United States purchasing \$65,176,310 (692,736,924 pounds) of the Santos crop for 1916 and a total of \$73,541,315 worth from the entire Republic.

Coffee does not grow well in the northerly States of Brazil, and the approximate southern limit for its growth is the State of Santa Catharina.

A recent estimate of the cost of coffee production, etc., in the State of São Paulo shows the following: Clearing forest land, per acre, \$3.33; planting per 100 trees, in line, \$2.50; care of each 100 trees during four-year period, \$13; annual maintenance expenses per 100 trees, \$2 to \$2.25; cost of gathering each bushel of coffee, \$0.12; drying per bushel, \$0.03; transportation per bushel (in large quantities) \$0.025. There are usually slight additional overhead costs. The above figures are, of course, subject to variations.

There are numerous estates in the coffee district employing large amounts of machinery and representing considerable investments. A good many joint stock companies are engaged in the industry, some of these being foreign. Among the foreign corporations may be mentioned the Dumont Coffee Co. (Ltd.), a British concern registered in 1896. This company, whose properties are located in the State of São Paulo, has an authorized capitalization of £800,000, in shares of £10 each, one-half being 1½ per cent cumulative preference shares and one-half ordinary shares. There are also outstanding £342,100 of an authorized £400,000 5½ per cent debentures, principal repayable in 1920, interest payable January and July, and subject to sinking-fund drawings up to 115. In 1910 a 25 per cent dividend was declared on the preference shares, liquidating all arrears, and full preference dividends have since been paid. In 1911, 20 per cent was paid on the ordinary shares; in 1912, 15 per cent; in 1913, 3 per cent; none since. The company has a reserve fund of £130,000. Figures for 1917 follow: Net profits, £40,452; brought forward, £48,919; total, £89,371; interest, £21,021; preference shares dividend, £30,000; carried forward, £38,350.

In January, 1918, the ordinary shares were quoted at 6¾ (high since 1911, 16¼), preference shares at 9¼ (high since 1911, 12½), and debentures at 94 (high since 1911, 108).

The São Paulo Coffee Estates (Ltd.) is another British public company in the field. Its capitalization consists of £120,000 preference shares of £5 par and £150,000 deferred shares of £10 par. There

are also two small debenture issues, one of $5\frac{1}{2}$ per cent interest, of which approximately £39,000 remained outstanding in 1916 (original issue £160,000), and £18,100 $5\frac{1}{2}$ per cent Santa Ernestina debentures. The preference shares receive dividends of 7 per cent per annum cumulative, in addition to which they are entitled to share with the deferred shares to the extent of one-half the profits remaining after 7 per cent has been paid on the deferred shares. During recent years the following dividends have been paid: 1905, 6 per cent on preference; 1906, 8 per cent (including 1 per cent back dividend); 1907, none; 1908 and 1909, 7 per cent annually on preference; 1910, $24\frac{1}{2}$ per cent on preference; 1911, 14 per cent, completing payments of all overdue dividends; 1912, $18\frac{3}{4}$ per cent on preference and 16 per cent on deferred shares; 1913, 7 per cent on preference; 1914, none; 1915 to 1917, 7 per cent on preference. The preference shares (£5 par) were quoted at $4\frac{1}{2}$ in January, 1918, as compared with $7\frac{7}{8}$, the high since 1911.

The Agua Santa Coffee Co., a British corporation, registered 1913, owns an estate in the Mattao district of the State of São Paulo, covering an area of 3,540 acres, of which 2,200 acres had been planted with 630,000 coffee trees when acquired. The authorized capitalization is £150,500, all issued, consisting of £75,000 7 per cent cumulative preference shares, which are entitled also to 25 per cent of the profits after 7 per cent has been paid on the ordinary shares; £75,000 ordinary shares, both issues of £1 par; also £500 in deferred shares of 1s. each. This last-mentioned class of stock is entitled to 25 per cent of the remaining profits after 7 per cent has been paid on the preference and the ordinary shares. Dividends have been paid by the company as follows: 1913, 7 per cent on the preference and 3 per cent on the ordinary; 1914, $3\frac{1}{2}$ per cent on the preference; 1915, $10\frac{1}{2}$ per cent on the preference and $2\frac{1}{2}$ per cent on the ordinary; 1916 and 1917, 7 per cent each on the preference, also 2.58 per cent and $2\frac{1}{2}$ per cent on the ordinary. The £1 ordinary shares were quoted in January, 1918, at 9s. 6d., the preference shares at 17s. 3d., and the deferred at 1s. 6d.

CACAO.

Brazil, in the year 1915, stood second among the nations of the world as a producer of cacao. The crop produced during that year was 46,260 tons, or 15.9 of the world's total production (Gold Coast, Africa. 77,278 tons, or 44.4 per cent). Of this total, 41,546 tons were exported from Bahia, which is the principal producing State in the Republic. The 1916 crop exported from Bahia was 37,481 tons. The 1917 crop was estimated to equal that of 1915.

There are stated to be very large areas in Brazil still available for the growing of cacao. The various States of the Republic stretching from the Amazon southward to northern São Paulo and Matto Grosso grow more or less cacao, that raised in Maranhão being regarded as the finest. It is claimed that the industry offers good opportunity for the profitable investment of moderate amounts of capital and will probably continue to do so for some time. Plantations yield anywhere from 5 to 13 pounds per tree, cases having been known where 20 pounds per tree were secured. It is claimed that one person may take care of as many as 1,000 trees. The export and other duties and taxes are moderate. A prewar estimate stated that

each plantation would cost \$0.80 to \$0.85 per tree and that in Bahia there were from 8,000,000 to 10,000,000 trees. Trees are generally planted about 300 to the acre and are usually grown on land 4 or 5 miles from the sea or farther, plantations extending inland into the mountain ranges. A somewhat humid climate is best suited for their growth.

BEANS.

Beans are grown in large quantities in Brazil, but until recently were almost wholly consumed at home. During the past year or two the country has exported them. The crop for 1916 in Rio Grande do Sul was valued at more than \$4,000,000 and in other States considerably exceeded that figure. The crop in São Paulo for 1916 was about 2,600,000 sacks of 132 pounds.

RUBBER.

The rubber industry of Brazil, despite all that has happened during the past three or four years, ranks second in importance to the raising and exporting of coffee. The exports of this product during 1916, 31,495 tons, were valued at \$36,537,475, as compared with \$33,946,432 in 1915, \$33,521,504 in 1914, and approximately \$80,000,000 in 1912.

Much has been written during recent years concerning this subject, and the phenomenal rise in the price of the products to dizzy heights, to be followed shortly by an equally spectacular crash, is now a matter of history. As is generally known, very little plantation rubber has been grown in Brazil, and owing to the more or less wasteful methods employed in tapping the trees of the Amazon basin, the high cost of supplies and materials, and the scarcity of labor, the Brazilian rubber merchant has found it difficult to compete successfully with the plantations of the East.

It has been pointed out that the high export duties tend to check the recovery of this industry. While this is partly true, it should be borne in mind that these export duties form the principal sources of revenue for the State of Para and adjacent territories, and unless some other means of raising revenue can be found it will be almost impossible to reduce them materially.

Every endeavor is being made to encourage the establishment of rubber plantations in the Republic, and the Government is lending aid to the industry and studying up-to-date methods. In the Amazon district, where the best quality of rubber is found, there is no great amount of cleared land and most of the district is more or less subject to floods. The half-civilized Indians of the territory, although able and willing to gather wild rubber, are not inclined to work on plantations and do not make good laborers. Therefore the problem of obtaining sufficient hands to take care of the rubber trees is not an easy one to solve. There are, however, a few plantations on the coastal lands, and progress is being noted. The quality of the Para rubber is too well known to require more than passing comment, and the industry seems almost certain to come into its own again.

The wasteful methods which, as stated, have been employed by many of the rubber gatherers in obtaining the wild rubber have made it necessary for these men to seek sources of supply each year at points higher up the river and its tributaries and have thus added greatly to

the cost of production. Nevertheless, there are still vast untapped areas and, thanks to a partial rally in the market price of the commodity, there are signs of some improvement.

The men employed in gathering rubber in the forests have frequently numbered 15,000 to 20,000. It was estimated during the days of good prices that these laborers, if successful, would frequently clear from \$500 to \$600 per year, and in some cases as much as \$1,000.

TOBACCO.

The State of Bahia is the principal center of the tobacco-raising industry, although the product grows freely in almost every State in the Republic. Despite the large amount grown for home consumption, exports for 1916 reached the respectable total of \$7,277,378 (21,293 tons), of which \$167,399 went to the United States, this total comparing with \$5,656,305 in 1915 and \$6,957,542 in 1914. Formerly Germany took most of the Brazilian tobacco.

It is said that the tobacco industry of Brazil had its origin before the coming of the white man and that for centuries it has been raised in large quantities. It has been estimated that a plantation of 150,000 square meters requires an annual outlay of £1,580 and earns approximately £2,120 each year.

COCONUTS AND COPRA—OIL NUTS—VEGETABLE IVORY.

The coconut is found in practically all parts of Brazil, but is not a product of great commercial importance in the southern sections of the country. There are vast areas in the Republic well adapted for its growth, and the industry should expand greatly in the future. A report submitted August 5, 1917, by United States Consul A. T. Haeberle, who is stationed at Pernambuco, contains data gathered by Mr. A. J. Brooks, an American engineer, who made a trip to Brazil to study the industry and who traveled extensively through districts suitable for the growth of the nuts. The report follows:

The coconut zone of Brazil fringes the coast from Parahyba on the north to Bahia on the south. This zone is spotted with coconut groves varying in size from a few hundred trees to 40,000. The total number of bearing trees approximates 1,250,000. The annual yield per tree is 40, or a total annual production of 50,000,000 nuts. The average size of the nuts compares well with the products of other tropical countries, 5,000 nuts being required per ton of copra.

There are three ports from which to ship coconuts—Capedello, Recife (Pernambuco), and Maceió. About three-fourths of the coconut trees are concentrated around Capedello and Maceió.

The price paid on the plantation for nuts varies with their size and their distance from the cities. The largest nuts command \$35 per thousand, while the smaller ones are sold for \$25 per thousand. The average selling price on the city market is \$42.50 per thousand.

No attempt beyond the experimental stage has been made to produce copra. The reason for this is the result of local conditions, namely, the limited number of available coconuts and the native's fondness for the nut as a table delicacy. With copra selling in New York at \$160 a ton and freight averaging \$10 a ton, the plantation owner profits 1 cent more on every coconut he sells on the local market than if he had turned that coconut into copra. This statement does not mean that copra can not be produced here at a profit. On the contrary, there is excellent opportunity for capital to operate a coconut grove and sell copra at a large margin of profit if a working organization were effected, if the other products of the tree were utilized, and if the available space were cultivated with catch crops.

The possibilities of the coconut industry in Brazil are tremendous. The annual yield of the trees at present is 40 nuts per tree, despite the fact that

many of the trees are robbed of their fruit before the meat begins to form, to be sold upon the local market for their milk. This practice has appreciably lowered the vitality of the trees. Seed selection has been almost entirely neglected, and fertilization is a science never practiced.

Improper spacing is another existing evil that contributes to the retarding forces so prevalent in the Brazilian coconut groves. This is strikingly depicted in the case of two adjoining groves of the same age—one planted with 75 trees to the acre and the other with 130 trees. The annual yield of the former is four times that of the latter. Disease and pests are almost unknown. Labor is cheap.

The possibilities of disposing of the by-products are excellent. The fiber would find a waiting market in the form of cord or rope because of the absence of a cord factory here; the husk would sell readily for fuel; the milk is always sought by the native for his familiar breakfast food, the "cuscoos"; and the palm leaves are eagerly bought by the natives for building purposes.

An estimate of the cost of developing 2,000 acres of coconut land in Brazil would read about as follows: Based on an average of 75 trees per acre, the total number of trees on the plantation would be 150,000; average yield of nuts per tree, 75; total annual yield of nuts, 11,250,000; copra capacity in tons per month, 175. The expenditures until the plantation reached full bearing would approximate:

First year.—Rent, \$500; seed (\$28 per 1,000 nuts), \$4,200; buildings, \$500; tools, \$2,000; clearing, planting, etc. (80 men at 25 cents a day), \$7,000; salaries, \$5,000; contingencies, \$2,000; total, \$21,200.

Second, third, fourth, and fifth years.—General maintenance, including rent, salaries, and catch-crop cultivation, \$8,300 per year, or \$33,200 in all.

Sixth year (first yield).—Plant for copra manufacture, \$6,000; picking and collecting, \$15,000; husking, \$15,000; cost of making copra, \$30,000; freight, Pernambuco to New York (50 per cent in excess of normal), \$13,500; general maintenance, \$8,300; contingencies, \$4,000; total, \$91,800.

Seventh year (first full yield).—Picking and collecting, \$20,000; husking, \$20,000; cost of making copra, \$60,000; freight, Pernambuco to New York, \$27,000; general maintenance, \$10,000; contingencies, \$4,000; total, \$141,000.

The credit side of the account would show the following entries:

First year.—Returns from catch crops, average \$2 per acre, \$4,000.

Second, third, fourth, and fifth years.—Returns from catch crops, average \$5 per acre, \$10,000 a year, or a total of \$40,000.

Sixth year (first yield).—Based on an average yield of 40 nuts per tree, the total would be 6,000,000 nuts, which would produce 1,000 tons of copra and 500 tons of coconut fiber or oil, and would be worth: Copra, 1,000 tons at \$125 a ton, \$125,000; fiber, 500 tons at \$40 a ton, \$20,000; catch crops, \$10,000; Government aid, \$10,000; total, \$165,000.

Seventh year (first full yield).—Copra, 2,000 tons at \$125 a ton, \$250,000; fiber, 1,000 tons at \$40 a ton, \$40,000; Government aid, \$10,000; total, \$300,000.

At the end of the seventh year the plantation account would stand thus:

Year.	Expenditures.	Revenues.	Excess expenditure.	Excess revenues.
First.....	\$21,200	\$4,000	\$17,200	
Second.....	8,300	10,000		\$1,700
Third.....	8,300	10,000		1,700
Fourth.....	8,300	10,000		1,700
Fifth.....	8,300	10,000		1,700
Sixth (first yield).....	91,800	165,000		73,200
Seventh (first full yield).....	141,000	300,000		159,000
Total.....	287,200	509,000	17,200	239,000

This gives a net return for seven years of \$221,800, or an average of \$31,685 a year. On a capital of \$30,000 this would mean an average annual return of 105 per cent.

The \$10,000 yearly Government revenue referred to above is expected State aid to be paid under a bounty provision set forth in the South American Year Book for 1915, page 243, which reads:

Cultivation of coconut palm (bounties).—The Brazilian Ministry of Agriculture has entered into a contract with Messrs. Octaviano Machado and Andre Christophe with a view to encouraging the systematic cultivation of coconut palms and the exportation of copra. Certain bounties are to be granted to the above-mentioned firm upon the following conditions: A report is to be presented to the Ministry before the end of the year giving full details as to the actual area under palm cultivation, the variety of palm planted, and the methods of cultivation adopted. A copra plant is to be established within two years to deal with the product of at least 3,000 hectares (7,400 acres) of coconut plantations. The Ministry of Agriculture will endeavor to obtain duty-free admission of all machinery necessary for the undertaking, and also the granting of a premium, for five years, of 30 reis per kilo (about one-half cent per pound) of copra exported, and 60 reis per kilo (about 1 cent per pound) of coconut oil exported, up to a maximum amount of \$10,000 per annum. Similar terms may be extended to any other applicant at the discretion of the Government.

The Brazil nut is a product of considerable commercial importance. Exports for 1916 amounted to \$1,722,114, as compared with \$980,009 in 1915 and \$2,280,275 in 1914. The trees from which the nuts are gathered often attain a height of 150 feet and a considerable girth. Most of these nuts come from the State of Para and are shipped from the port of Para (Belem).

Babassu nuts are exported from Brazil to the amount of several thousand tons annually, and the quantity should be considerably increased after the war. Most of these are exported from Bahia. These nuts yield a high percentage of oil not unlike that produced from the coconut. Another somewhat similar nut is one variously known as the souari, pekea, or butter nut, which is found also in the Guianas and Peru. The nut brings a good price and has excellent commercial possibilities, partly because of its edible qualities and partly on account of the fat that it contains, there being said to be a larger proportion in this nut than in any other known species. Experiments are being made as to the possibilities of cultivating this product, and it is believed that plantations of the trees would prove more profitable than an investment in coconuts requiring equal capital.

Vegetable ivory is also obtained in Brazil and exported in fair quantities. These nuts are produced by the piassava palm and are used for the making of buttons, beads, etc.

CARNAUBA WAX.

Carnauba wax, which is not unlike beeswax, is found in nearly all of the northern States and is of considerable commercial value. In addition to the wax, which forms an undercoating for the leaves of the tree, the roots and other parts are used for various purposes. During 1916 the exports of this product amounted to 4,167 tons, valued at \$1,914,454, as compared with 5,897 tons, valued at \$2,399,033, in 1915. In addition, large amounts of the products of this tree are used in the local markets, and the industry has generally assumed considerable importance. There are more than 1,000,000 of these trees in the State of Ceara, where they thrive well, and almost equal numbers in other States.

SUGAR.

The sugar plantations of Brazil are attaining considerable importance, a vast increase being shown in the value of the amount an-

nually exported. There are a good many sugar mills in the Republic, although only a few use up-to-date machinery. During three recent years the exports of sugar have been as follows: 1914, 31,860 tons, \$1,625,916; 1915, 59,074 tons, \$3,607,452; 1916, 53,825 tons, \$6,136,542. The exports of sugar in 1909 amounted to 70,208 tons.

Uruguay, Argentina, Great Britain, the United States, and Portugal are the principal customers for the sugar. The total output of sugar for 1916, including that consumed locally, has been estimated at 300,000 tons. Of the sugar exported in 1916, \$3,449,405 worth was cleared from Pernambuco and Maceio. The exports through Bahia totaled 15,880 tons, valued at approximately \$1,800,000.

The principal seats of sugar cultivation are the coastal lands and the interior districts, extending from the district adjacent to the port of Natal as far south as São Paulo. Although not so successful in the southern States of Brazil, sugar cane is raised as far down the coast as Rio Grande do Sul, in which State the 1916 crop was estimated to be worth about \$3,000,000.

There is much criticism concerning the fact that the planters are so often taking advantage of the fertility of the soil and working crop after crop without fertilizing or taking proper precautions to prevent its becoming poor in quality. Such conditions are, however, not wholly limited to Brazil, as a tour of sugar-producing countries will indicate. It is claimed that Brazil is better adapted for sugar raising than any other country in the world and that the industry is destined to expand considerably in the future.

The yield of sugar per acre in the States of Rio de Janeiro and São Paulo averages, it is stated, 20 tons and upwards, the proportion of sugar in the cane averaging slightly more than that attained in Cuba. The results obtained are excellent but could be improved if more modern machinery were available. In the northerly States the cane ripens generally in about 15 months, and south of Rio de Janeiro in about 18 to 20 months. Although sugar is exported in considerable quantities, the high price in the local market indicates that there is no overproduction. It is frequently stated in Brazil that foreign capital could scarcely be more profitably invested than in sugar plantations equipped with modern mills and machinery and properly managed.

OTHER CROPS.

Space will not permit an exhaustive discussion concerning opportunities in other branches of agriculture, fruit growing, etc. Among the other crops of the Republic, cotton would rank first in importance. During the blockade days of the American Civil War the industry flourished. Following the return of normal conditions in the United States the production decreased considerably, but in recent years has advanced greatly owing to the establishment of numerous mills for the manufacture of cotton goods (see p. 209). The exports of the product for 1914 totaled \$8,332,812; 1915, \$1,374,159; and 1916, \$575,991. The decrease in exports does not prove that the production is declining. Instead, far larger quantities are being used locally owing to the growing importance of the cotton-milling industry.

Concerning the cotton industry and its future, an article that recently appeared in the London Times contained the following interesting information:

From a casual glance at recent statistics it would appear that the cotton-growing industry of Brazil was on the down grade, but this is very far from being the case. The all-sufficient explanation of the decrease in the quantity exported is the fact that the fiber is now being manufactured in the country itself, and in this way it may prove that the war has been of the very greatest value to Brazil in introducing the capital, enterprise, and technical skill necessary to improve its home manufactures. The present development of the cotton industries is one of the most important factors in the future of the country. There is every promise of great success and ample scope for enterprise and capital.

It would be a great benefit, not only to Brazil but to the world, if more attention were devoted to the production of cotton in Brazil. There is grave reason to anticipate that the world's cotton crop may prove insufficient for its needs in the near future. In Egypt and in the United States the cultivator has always to choose between cotton and wheat. With the increasing demand and higher price for wheat it becomes evident that the cotton crop is likely to be restricted.

The Ministry of Agriculture has been endeavoring of late to introduce more practical methods in the cultivation of a plant for the growth of which such favorable conditions exist in the northern States. Formerly the cottons of North Brazil were looked upon in Manchester as some of the finest in the market. Latterly they have fallen away.

"This decadence," wrote the Minister of Agriculture, "was due to ignorance of the proper methods of planting, to the lack of selected seeds, to failure to cultivate from seed of different varieties in order to prevent degeneration of the plant, to bad methods of opening the pods, and to the complete absence of regular preparation of the fiber, which was constantly damaged by the use of antiquated machinery or by the unskillfulness of the operators."

In 1912 the Government sent a delegate on a tour of inspection through the chief cotton-producing countries with the object of studying the most modern methods employed in the cultivation, harvesting, and preparation of the plant. It also set up an experimental station for the intensive cultivation of cotton in the State of Maranhão.

A contract was signed in May, 1913, between the Minister of Agriculture and Dr. Pedro de Godinho, by which the latter agreed to establish demonstration camps all over the cotton districts, presided over by competent experts.

Rice is becoming an important crop. Only a few years ago large quantities were imported. To-day the balance has swung to the export side, and the Republic is becoming one of the great centers of production.

Herva mate, known as yerba mate in Spanish-speaking countries, is also raised in large quantities and a large proportion exported. The total exports of the product in 1916 amounted to \$8,909,166, most of which went to Argentina and Uruguay. Only \$236 worth of the product went to the United States, as the matte has not as yet come into general use in this country.

MISCELLANEOUS AGRICULTURAL DATA.

All of the Brazilian States contain more or less extensive agricultural areas, and there remain great stretches of undeveloped territory certain in the course of time to bring considerable wealth to the Republic. Notwithstanding the fact that virgin land still exists in abundance, very substantial progress has been made in many of the States. There are in São Paulo alone 60,500 farms, valued at upward of \$900,000,000, covering an acreage of nearly 42,000,000, or more than 65,000 square miles. The agricultural production of these farms from 1912-13 to 1915-16 was as follows:

Chief products.	1912-13	1913-14	1914-15	1915-16
Coffee.....bags.....	9,470,833	11,072,000	9,207,000	12,194,000
Corn.....bushels.....	37,020,000	30,450,000	35,200,000	58,000,000
Beans.....do.....	5,287,000	5,286,000	6,300,000	9,820,000
Rice.....do.....	3,826,000	4,063,000	4,780,000	8,172,000
Sugar cane.....tons.....	24,878	24,369	27,920	29,100
Cotton.....bales.....	176,900	41,900	49,600	50,000
Tobacco.....do.....	10,080	10,000	9,500	10,200

NOTE.—Bag of coffee weighs 132 pounds or 60 kilos; bushel contains 36.35 liters; bale weighs 500 pounds.

Rio Grande do Sul, one of the richest States in the Republic, although only a small part is developed, produced in 1915, according to United States Consul Lee, crops of the following values:

Products.	Value.	Products.	Value.	Products.	Value.
Maize.....	\$38,250,000	Potatoes.....	\$4,537,500	Beans.....	\$272,250
Vegetables.....	14,250,000	Tobacco.....	1,139,250	Oats.....	73,750
Black beans.....	4,125,000	Wine.....	3,950,000	Peanuts.....	625,000
Herva mate.....	12,487,500	Barley.....	401,400	Birdseed.....	211,000
Mandioca.....	6,300,000	Alfalfa.....	3,150,000	All other products.....	23,125,000
Wheat.....	2,050,000	Lentils.....	1,300,000		
Sugar cane.....	3,000,000	Rye.....	285,200		
Rice.....	7,965,000	Onions.....	2,337,500	Total.....	129,835,350

LIVE-STOCK AND MEAT INDUSTRIES.

Few countries in the world offer better prospects for cattle farming and for the carrying on of the meat-packing industry than Brazil. Those who have seen the enormous and wonderful cattle ranges of Rio Grande do Sul and other States of the Republic can not but be enthusiastic over the outlook for the future in this field of enterprise. American interests have realized the opportunities existing and have taken a leading position in developing them. Some of the American companies that have entered the field have embarked in the manufacture of all kinds of by-products of the beef and have equipped their plants to handle a very large amount of business.

It has been recently estimated that the number of cattle within the boundaries of Brazil would not fall short of 31,000,000, or about 3.6 per square kilometer, compared with 11 per square kilometer in Argentina and 7 per square kilometer in Uruguay. The total number of cattle, as above, compares with approximately 22,000,000 in 1912.

CATTLE RAISING IN RIO GRANDE DO SUL.

Rio Grande do Sul has taken the lead as a cattle-producing State, but several other States are not far behind it. Efforts are being made to improve the stock through the importation of fine breeding steers, and this is beginning to show excellent results.

During 1916 exports of frozen meat reached a total of 34,000 tons, valued at about \$7,500,000, and these figures have been more than doubled during 1917. The total value of beef products of the State of Rio Grande do Sul for 1916 was estimated at \$10,000,000, a large portion of which was shipped to Great Britain and Italy.

There follows a report by United States Consul Samuel T. Lee concerning the progress of the beef and cattle industries in Rio Grande do Sul (report dated July 2, 1917):

The leading source of wealth in the State of Rio Grande do Sul (the area of which is equal to twice that of Pennsylvania) is the production of xarque, or jerked beef, and such animal by-products as hides, horns, bones, tallow, lard, glue, cattle hair, wool, and sheepskins.

This is essentially a cattle region, and since first settled has supplied large amounts of jerked beef to other sections of Brazil and neighboring countries. The records of this consulate indicate that as far back as 1829 small United States sailing vessels coming to this port carried on an active trade in dry cattle hides. There has never been a market in the United States for jerked beef, however, and this article has been sold mostly to other States of Brazil and to Cuba.

The increasing problem of the future meat supply of the world is bringing southern Brazil into prominence as one of the few remaining and only partly developed tracts of good range land in North or South America for the raising of beef cattle on a large scale on open ranches. Although this district is completely within the South Temperate Zone, no winter feeding of range cattle is required. This territory is practically free from cattle diseases and in the near future will be a large producer of frozen meats for consumption in the United States.

Large American meat packers have acquired important holdings in Rio Grande do Sul at Livramento, Rosario, Rio Grande, and other places. Modern refrigerating plants are being constructed at Livramento and Rio Grande, and gradually many of the numerous jerked-beef plants (saladeros or xarqueadas) elsewhere will be transformed into modern establishments. The cattlemen are aware of the changing conditions and demands, and are improving their herds by the introduction of high-grade stock.

The number of cattle in Rio Grande do Sul has gradually increased until the total for the entire State was officially reported to be 8,057,062 on December 31, 1916; in 1908 the number was 6,199,410; in 1910, 6,574,954; in 1912, 7,023,209; in 1914, 7,529,702; and in 1915, 7,917,298. On December 31, 1916, the official statistics show the number of other live stock in this State as follows: Sheep, 4,241,386; swine, 3,832,144; horses, 1,195,205; mules, 315,077; and goats, 121,128.

Cattle were slaughtered in jerked-beef establishments during the years given in the following numbers: 1907, 598,080; 1910, 673,580; 1912, 804,264; 1914, 510,885; and in 1916, 457,958. The decline for the last four years is accounted for by the increasing amount of canned beef produced. It is estimated that between 350,000 and 400,000 head are killed each year for domestic consumption.

The following table shows the value of the jerked beef, or xarque, produced from 1907 to 1916:

Years.	Exported from State.	For local consumption.	Total.	Years.	Exported from State.	For local consumption.	Total.
1907.....	\$5,741,489	\$1,014,281	\$6,755,770	1912.....	\$7,885,048	\$1,302,253	\$9,187,301
1908.....	6,337,612	807,126	7,144,738	1913.....	7,937,816	675,034	8,612,850
1909.....	6,227,188	936,362	7,163,550	1914.....	5,928,224	2,288,212	8,216,436
1910.....	6,096,829	1,171,797	7,268,626	1915.....	6,994,052	2,257,821	9,251,873
1911.....	6,578,282	1,465,277	8,043,559	1916.....	7,374,410	2,908,044	10,282,454

LIVE-STOCK INDUSTRY IN SAO PAULO AND MATTO GROSSO.

Further information concerning the live-stock industry of southern Brazil is given by United States Consul Charles L. Hoover (São Paulo, 1917) :

The industry that bids fair to become the most important in the State of São Paulo is stock raising, especially the production of meat animals. Two packing houses, which slaughter 300,000 cattle per year, have been established there; one is owned and operated by Americans. Another American company has purchased land in the city of São Paulo for a plant that will handle 1,500 head of cattle, 1,000 hogs, and 2,500 sheep daily.

It is estimated that there are 2,500,000 cattle in the territory tributary to São Paulo, although there is no way of ascertaining the exact number. The best breeding grounds for this region are located in Matto Grosso, where the cattle virtually run wild, as formerly in Texas. Each rancher holds a certain range and endeavors to keep his own cattle confined thereon and to mark them with his own brand. One American company controls several million acres and possesses about 500,000 cattle.

Before the packing houses were started in São Paulo, the cattle on these ranges were useless except for the production of jerked beef, or xarque. For jerked beef, the leaner the animal the better, and consequently no effort was made to improve the breed until the need of it was foreseen if the herds were ever to become profitable through the location of refrigerating plants in this region, and work was begun in a systematic way. Both the Brazilian and the São Paulo Governments have not only sought the types best adapted to the country, but they have encouraged the progressive ranchers to import on their own account by paying transportation costs and remitting customs duties. As a result, a number of breeding farms have been started from which thousands of males are sent up to the range country every year, and grade cattle are now received in large numbers. Many different breeds have been tried, but it seems that whatever strain of European cattle may be selected to give body to the animal and quality to the beef, a cross with the zebu, or Indian cow, is necessary, as this animal best resists the fever and the berne fly. The zebu attains a large size, and its smooth skin produces excellent leather.

From the breeding ranges in Matto Grosso the cattle are driven in large herds to the fattening pastures in the southwestern part of Minas Geraes and the northwestern part of São Paulo. It is the preparation of these pastures that places cattle raising on a large scale there beyond the reach of the man of small means. They are originally open country and the wild grass is poor in quality. Thousands of miles of barbed-wire fence have been constructed; the land is plowed (disk plows pulled by tractors are frequently used), then fertilized and planted to grass.

According to recent statistics there are about 2,000,000 hogs and about 300,000 sheep in São Paulo. An American company is engaged in the sheep-raising industry and has purchased some 15,000 ewes of native stock, which it proposes to cross with imported breeds. This company's property is located in the southern part of the State.

SHEEP AND HOGS IN BRAZIL.

In addition to the 31,000,000 cattle in the Republic, there are, it is estimated, 11,000,000 sheep and about 18,500,000 hogs. The number of sheep per square kilometer in Brazil, 1.25, compares with 22 in Argentina and 18 in Uruguay. There are still considerable areas of good sheep pasture land, and this branch of the live-stock industry should develop in the future. The number of hogs per square kilometer in Brazil is 2.16, this comparing with 0.5 in Argentina and 0.3 in Uruguay.

BRITISH INTERESTS.

Great Britain is interested in the Brazilian meat industry, probably its largest company in the field being the Brazilian Extract of Meat & Hide Factory (Ltd.). This company holds a concession from the Brazilian Government to make meat extract following the Liebig method and owns a factory at Paredao, near Porto Alegre, that is engaged in making this product and jerked beef. The company was incorporated in 1887, and its present capitalization consists of £21,109 shares and £23,000 debentures. The dividend payments in recent years have been irregular.

OPERATIONS OF BRAZIL LAND, CATTLE & PACKING CO.

The Brazil Railway, at the time of commencing operations, purchased through a subsidiary, the Brazil Land, Cattle & Packing Co., large areas of cattle-grazing lands. These cattle lands, the total acreage of which just prior to the receivership of the Brazil Railway was 8,163,081, are in the States of Parana, Matto Grosso, and Minas Geraes. The company stocked these lands with fully 200,000 head of native cattle and about 1,000 pure-bred imported cattle.

The lands selected were mostly well watered and, with the exception of portions here and there in Matto Grosso, which were covered with valuable hardwood timber, were excellent grazing lands.

Prior to the receivership the property was generally divided into ranches, a large amount of fencing was done, and necessary buildings were erected.

Since the outbreak of the war the increased prices received for this company's products have aided it materially and its outlook may be said to be extremely bright. The Brazil Land, Cattle & Packing Co. owns 77½ per cent of the shares of the Continental Products Co., the remainder being held by Wilson & Co., of the United States. The plant of the Products Co. is located near São Paulo and is expected to prove highly profitable.

In addition to owning all of the share capital, the Brazil Railway owns 90 per cent of the Brazil Land, Cattle & Packing Co.'s outstanding bonds.

REPORTS BY AMERICAN CONSUL GENERAL.

Concerning the cattle industry, Consul General Alfred L. M. Gottschalk, of Rio de Janeiro, furnished under date of January 4, 1917, an interesting report. Extracts from this report are here given:

Brazil to-day offers a field rich in possibilities for the cattle industry. The only existing census of the herds in the Republic sets

their total at 30,000,000, but the number is undoubtedly larger than that.

It is thought in some quarters that a newer cattle census will tend to show that not only the rolling plains of southern Brazil which border upon Uruguay, Argentina, and Paraguay, but also a vastly more extensive central and tropical highland region, including the States of Matto Grosso, Goyaz, parts of Minas Geraes, and perhaps also the western portion of São Paulo, may prove in time to be valuable cattle ranges.

In these States are vast lands still undeveloped to agriculture. Frost is practically unknown there. A special pasture adapted to the Brazilian soil and climate, the *caipim gordura* ("fattening grass"), as it is popularly called, grows there all the year round and keeps the cattle constantly in fit condition for slaughter. South of the State of Parana the frosts, although not heavy, interfere with the growth of this grass, and the cattle therefore have their lean and fat periods. This is precisely what meat exporters do not want.

The question of the relative pasture value of the various Brazilian ranges, as affected by the necessity of providing for the support of a presumably largely-increased national herd, seems most vital at present. The determination of the section of the country that is really to be the future seat of the cattle industry will decide the building of roads and the location of the most favorable exporting points.

LIST OF PACKING HOUSES.

In the country at present, actually in operation or projected, are the following packing houses or frigoríficos:

At Oassasco, State of São Paulo, a joint interest of Wilson & Co. with the Brazil Railway (American).

At Barretos, State of São Paulo, a plant capitalized and conducted by Senhor Conselheiro Prado and his associates (Brazilian).

At Rio Grande do Sul, the location selected by Swift & Co., of Chicago, for the erection of its new plant (American).

At Pelotas, State of Rio Grande do Sul, a project on the part of the União dos Criadores (Ranchmen's Society) of the State, which has not yet taken complete form (Brazilian).

At Santa Anna, State of Rio Grande do Sul (near the Uruguayan border), the probable location of a packing house to be erected soon by Armour & Co., of Chicago (American).

At Mendes, State of Rio de Janeiro, on the Central Railway of Brazil, about 80 kilometers from Rio de Janeiro, a packing plant, now in the course of construction (some of the buildings were formerly used as a brewery), of which little is known. Mr. Vestey, of Chicago, is said to be concerned, with English partners. The plant is expected to commence slaughtering in May, 1917, and will have a capacity of 500 head per day. The interests are now represented here by Mr. F. Ellis, an English citizen.

At Rio de Janeiro a chilling and freezing plant of modern type, the property of the Port Co. (one of the subsidiary companies of the Brazil Railway), which does not slaughter or use by-products, but merely chills and freezes for export the cattle slaughtered at the municipal slaughterhouse of Santa Cruz, near Rio de Janeiro (French company).

Each of these companies has selected a location where it expects it will find the greatest number of cattle at the lowest price, but at the present stage of development it is difficult to prophesy as to which of these locations will eventually prove to have the most commanding position.

MEASURES TAKEN BY STATES AND CONCESSIONS OFFERED.

Dr. Affonso A. Camargo, president of the State of Parana, has been extending the high roads leading out from his capital, Curitiba, toward Goarapoava, so as to tap the State of Matto Grosso, and already, with evident success, he has had a large drove of Matto Grosso cattle brought down on the hoof at a favorable price from Porto de Monjolli on the border of that State. He desires to have an American packing house settle in his State, and proposes, if any suitable firm approaches him with a proposition, to give it legal guaranties that the present State export duties and charges (about 4 per cent or less) shall not be increased in any way for a term of 15 years.

Curitiba's port is Paranagua, which is 2½ hours distant by rail. A very fair harbor there is used by the Brazilian coastwise shipping companies (Costeira, Commercio e Navegação, and Lloyd Brasileiro) and the Funch-Edye line of steamers out of New York, which have been bringing between 800 and 1,200 tons of American general cargo to Paranagua per month.

Similar concessions were offered by Col. Felipe Schmidt, governor of the State of Santa Catharina, the port and capital of which is Florianopolis. The duties on exports in that State are even lower, generally, than in Parana, and the tendency is to do away with them altogether on many articles.

In the State of Rio Grande do Sul the present acting governor, Gen. Salvador Ayres Pinheiro-Machado, has signed a bill giving to any foreign meat-packing industries that might settle in the State 30 years' exemption from export taxes of all sorts. The State, however, in obedience to the interests of its large ranch owners, finds it necessary to reserve to itself the right of subsidizing any purely native industry of this sort that might later develop and has already imposed a tax of 10 milreis (\$2.50 United States currency) upon every cow under 10 years of age slaughtered, in order to protect its herd from decimation by the meat-packing business.

QUALITY OF CATTLE.

A question often asked by representatives of American meat-packing interests who have visited the country is: "When may we count on getting well-bred cattle here?" Men with a very considerable experience in the southwest of the United States, as well as in Argentina, have stated that the cattle now being slaughtered in Brazil—the ordinary native stock of the country, known as gado crioulo—compare more than favorably with Argentina's native stock of 20 years ago, before the introduction of foreign sires into Argentina had modified and improved the herd to its present type.

Much depends upon whether or not the packing plants differentiate in favor of well-bred cattle. If the packers pay as much per kilo or per pound for a fat native steer that yields 35 per cent of first-class meat as they would pay for an improved type of animal that would yield between 55 and 60 per cent of its weight in first-class meat, just so long will the improvement of the Brazilian herd be delayed.

BENEFIT FROM ADVENT OF AMERICAN PACKERS.

The advent of the American meat packers into the country will naturally mean a visible economic benefit. The only thing for them

to do is to prove to Brazil that they have at heart the stable foundation of the cattle business in the country, since they hope to be sharers in its future. From three American sources, two of which are large meat-packing establishments, the consulate general has been approached with a request to offer in their names to the Brazilian National Society of Agriculture handsome prizes to be awarded for good cross-bred stock at the cattle fair. These prizes have been gratefully accepted.

SLAUGHTERING WILL NOT INVOLVE DIMINUTION OF HERD.

It seems clear that the Brazilian herd will be able to stand the drain of the packing houses upon it and still not suffer numerically. Assuming the present herd to be of only 21,000,000 head in all, a calculation made by a recognized American authority among ranchmen in Brazil, Mr. Murdo MacKenzie, has particular interest.¹ He states:

On the assumption that Brazil has only 21,000,000 cattle and no intention of increasing this number, the number of cows that could be slaughtered annually, if the cows were not allowed to remain on the pastures longer than to attain the age of 9 years, would be 881,345, and the number of 4-year-old steers for annual slaughter would be 1,422,336, making together 2,303,681.

In a herd of 21,000,000 cattle, where steers are held until 4 years old before slaughtering, there should be 7,000,000 cows. From this number of cows a calf crop of 50 per cent should be obtained, thus giving 3,500,000 calves annually. Half of this number (1,750,000) would be heifers and the other half steers. Assuming these figures to be approximately correct a surplus of 881,345 cows and 1,422,336 steers would annually be disposed of. These figures are arrived at as follows:

Cows—Number of heifer calves produced, 1,750,000; less loss as yearlings at 10 per cent, 175,000; loss as twos, at 7 per cent, 110,250; loss as threes, at 7 per cent, 102,532; loss as fours, at 7 per cent, 95,355; loss as fives, at 7 per cent, 88,680; loss as sixes, at 7 per cent, 82,472; loss as sevens, at 7 per cent, 76,699; loss as eights, at 7 per cent, 71,330; loss as nines, at 7 per cent, 66,337; balance, 881,345.

Steers—Number of calves, 1,750,000; loss as yearlings, at 10 per cent, 175,000; loss as twos, at 5 per cent, 78,750; loss as threes, at 3 per cent, 44,887; loss as fours, at 2 per cent, 29,027; balance, 1,422,336.

If we have a surplus of 2,303,681 cows and steers to dispose of annually and allow 1,000 per working day to each packing house for slaughter, Brazil could afford to supply seven packing houses with this number and still have 112,681 head left over. These figures are arrived at by assuming that all the cattle are slaughtered by packing houses and that the herds are held at the original figure, 21,000,000, upon which the calculation has been based. If, however, the herds are increased, the output of cows will be decreased in that proportion, but this would be only for a few years, after which the output of both cows and steers would again be increased.

BRAZILIAN SHEEP INDUSTRY.

The report of Consul General Gottschalk closes with brief remarks concerning the sheep-raising industry. The raising of sheep in Brazil, he says, is still in the experimental stage. Scientific development is possible at three points—in Minas Geraes, Parana, and Matto Grosso. The last-mentioned center for the industry has 400 head. The native herds of the State of Rio Grande do Sul have been furnishing considerable wool for export.

Experiments made at the points mentioned with Romney March sheep seem to have been very successful, and this Kentish type, bred

¹ It may be observed that Mr. MacKenzie's estimate of 21,000,000 differs from the figure (30,000,000) mentioned on page 205.

for both wool and meat, has produced some Brazilian mutton of excellent flavor. Experts believe that on the extensive ranges that the country affords these sheep could very well be pastured on the same ground with neat cattle if the herds were not too bulky.

NEW PACKING HOUSES.

Under date of October 4, 1917, Consul General Gottschalk reported that two new packing houses were about to be added to the list given on page 205. One of these, he says, is to be at the town of Sitio, and the other (to have a capacity of 400 head of cattle slaughtered per day) is nearing completion at Barbacena. Both places are in the State of Minas Geraes.

The enterprise concerned is the Companhia Pecuaria e Frigorifica de Brazil, working under a concession granted it by Decree No. 11999 of March 22, 1916. Its legal domicile is in the city of Rio de Janeiro. Its purpose is to exploit slaughterhouses, packing houses, and other more or less closely related industries, and to trade in and export the products of such industries.

The company is also the possessor of the concession granted on May 10, 1910, by the State of Minas Geraes to Coronel José Horacio de Lemos. This is only a State concession, but it grants exceedingly wide powers to the concessionaires. Its capital is placed at 5,000 contos of milreis (over \$1,000,000 United States currency).

The company is likewise holder of another concession originally granted to Coronel Horacio José de Lemos, for the slaughtering of cattle and the establishment of packing houses in the State of Rio de Janeiro.

TIMBER RESOURCES.

The forestal wealth of the Republic of Brazil is perhaps as great as that of any country in the world. To name and describe the various trees would require a volume. The writer, who has traveled through large forest-covered areas of Parana and Santa Catharina, can but echo the universal praise that has been bestowed on this magnificently timbered country by those who have seen it. The timber industry of Brazil, despite its wonderful prospects, is only in its infancy, and but little has thus far been exported. Concerning the forest resources of Parana and Santa Catharina, one may quote the following excerpt from a report submitted to Great Britain by His Majesty's minister to Brazil, Sir W. Haggards:

It is only necessary to traverse the magnificent forests of Parana and Santa Catharina to be convinced of the impossibility of estimating the immense wealth of timber in these two States. The great variety of woods may be judged from the fact that I was shown by a Brazilian gentleman at Curitiba no less than 72 specimens of different woods found in the State of Parana alone.

Some of these were of exceptional beauty. The most valuable and abundant of all these are undoubtedly the Parana pine and the imbuya, which are found in both States. The former resembles a church candlestick, with many branches rising upward from the top, or perhaps, to use a homely simile, a blown-out umbrella, and when the trees are dead and bare of needles, they look exactly like the framework of an umbrella. Its straight trunk and freedom from limbs make it easily "handled" by the mills. It has very hard knots containing a great quantity of resin, which is used for pitch on the railway. Unlike other pines, however, it has no turpentine in sufficient quantities to make this a

marketable commodity. The actual wood is sent in large quantities to Curitiba, São Paulo, and Rio de Janeiro for building purposes. The larger trees, which have a height of about 100 feet and a diameter of 3 feet or more at the base, are said to be of almost incalculable age, as the rings marking the annual growth are so close as to be nearly indistinguishable, having in some cases, however, been counted up to 2,000. The wood, like that of the imbuva, sinks in water.

The imbuva is a very hard wood, resembling mahogany, though, in my opinion, it is not as handsome as that wood.

Presumably the first important foreign concern to enter the timber industry in Brazil was the Brazil Railway, which through a subsidiary known as the Southern Brazil Lumber & Colonization Co. acquired 566,475 acres of forest land in the States of Santa Catharina and Parana. Three mills were constructed, these being known as the Tres-Barras, Calmon, and Sengas mills. By far the most important of these mills is the Tres-Barras, which has a capacity of 40,000,000 feet a year. This is located at a place with a similar name situated on a branch of the São Paulo-Rio Grande Railway. The logs are handled at the mill on a monorail system, and there have been located at this place a fully equipped planing mill and box factory, a number of dry kilns, etc.

The timber areas owned by the company are estimated to contain 5,000,000,000 feet of standing timber, much of fine quality, this quantity being sufficient to run the mill at Tres-Barras at full capacity for a century. Under normal conditions a market for the lumber should be found locally and in Uruguay and Argentina. The first exports of lumber by rail from Tres-Barras were made in May, 1913, at the opening of the railway to the port of São Francisco. During part of the war period shipments were small, and lumber held in reserve was more than sufficient for the export needs. This caused the temporary shutting down of the mills. These in 1912 produced as follows: Tres-Barras, 17,700,000 feet; Calmon, 4,800,000 feet; and Sengas, 500,000 feet.

MANUFACTURING ENTERPRISES.

Although by no means considered a manufacturing country, Brazil has made commendable progress along certain lines. Among various lines of manufacturing the textile industry has taken a high place, there having been in existence two years ago 303 factories, employing 74,609 operatives, the invested capital totaling 368,144,000 milreis and the annual output 278,289,950 milreis.

The largest concern in this field of industry, the Companhia Nacional de Tecidos de Jute, in São Paulo, has a capitalization of 26,000,000 milreis and an annual output of 14,000,000 milreis. A total of 2,800 hands are employed, the company manufacturing sacking, yarn, rope, thread, etc. The company paid a dividend of 20 milreis per share in January, 1917, its 200-milreis shares being quoted at 210 milreis (105 per cent). The company, in addition to its stock, has two issues of debentures, each for 13,000,000 milreis, bearing interest at 8 per cent and 5 per cent per annum, respectively. Interest on these issues is payable semiannually, January and July.

The cotton mills are the leaders in the textile field, their annual output totaling 237,499,000 milreis. Many of these are large companies, their shares being widely held locally and considered sub-

stantial and profitable investments. The following table, showing the capitalization and output of the most important of these cotton mills, was forwarded by United States Consul General A. L. M. Gottschalk from Rio de Janeiro in 1916:

Factories.	Location.	Capital.	Annual output.
		<i>Milreis.</i>	<i>Milreis.</i>
Progreso Industrial do Brasil.....	Rio de Janeiro.....	13,600,000	8,800,000
Confiança Industrial.....	do.....	13,000,000	8,500,000
Fiação e Tecidos Alliança.....	do.....	12,750,000	6,800,000
Fiação e Tecidos Botafogo ¹	do.....	12,000,000	10,200,000
Fabrica Volorantim.....	Sorocaba.....	10,000,000	6,400,000
Brasil Industrial.....	Paracamby.....	9,800,000	6,000,000
Companhia Petropolitana.....	Petropolis.....	9,000,000	5,000,000
Manufacturados Fluminense.....	Nitheroy.....	9,000,000	4,200,000
Fiação e Tecidos Corcovada.....	Rio de Janeiro.....	8,730,000	5,200,000
Fiação e Tecidos Carioca.....	do.....	8,400,000	6,300,000
Cotonificio Rodolpho Crespi.....	São Paulo.....	8,000,000	3,900,000
America Fabril.....	Rio de Janeiro.....	7,600,000	5,600,000
Emporio Industrial do Norte.....	São Salvador.....	6,740,000	4,000,000
Industrial Pernambucana.....	Camaragibe.....	6,000,000	3,500,000
São Bernardo Fabril.....	São Bernardo.....	5,700,000	2,500,000
Industrial Reunidas F. Matarazzo.....	São Paulo.....	5,000,000	5,400,000
Fiação e Tecidos de Pernambuco.....	Torre.....	5,000,000	4,500,000
Sociedade Italo-Americana.....	Salto de Itú.....	4,825,000	3,000,000
Fabril Paulista.....	Pecife.....	4,600,000	4,000,000
Valença Industrial.....	Valença.....	4,135,000	2,400,000
Estamparia Ypiranga.....	Bairro Ypiranga.....	4,000,000	2,900,000
Progreso Industrial da Bahia.....	São Salvador.....	3,742,000	3,200,000
Fabrica Paulistana.....	São Paulo.....	3,600,000	1,410,000
Fiação e Tecidos São Bento.....	Jundiáhy.....	3,500,000	2,050,000
Fiação e Tecidos N. S. da Ponte.....	Sorocaba.....	3,500,000	2,000,000
Otherer Speer & Cia.....	do.....	3,410,000	2,500,000
Industrial do Rio Grande do Norte.....	Natal.....	2,800,000	720,000
Industrial Sul Mineira.....	Itajuba.....	2,800,000	981,000
Fiação e Tecidos Cometa.....	Petropolis.....	2,800,000	2,500,000
Fiação e Tecidos Mageense.....	Magé.....	2,780,000	2,600,000
Fiação e Tecidos S. Martinho.....	Tatuhy.....	2,500,000	2,000,000
Taubaté Industrial.....	Taubaté.....	2,500,000	1,085,000
Paulista Anágen.....	São Paulo.....	2,500,000	2,000,000
Fiação e Tecidos Santo Aleixo.....	Santo Aleixo.....	2,400,000	960,000
Tecidos Porto-Alegrense.....	Porto Alegre.....	2,300,000	1,500,000
Pinotti Gamba & Cia.....	São Paulo.....	2,250,000	1,850,000
São Pedro de Alcantara.....	Petropolis.....	2,200,000	1,300,000
Industrial Mineira.....	Juiz de Fora.....	2,200,000	1,800,000
Industrial Estancia.....	Estancia.....	2,200,000	1,500,000
Alagoana de Tecidos.....	Cachoeira.....	2,000,000	2,000,000
Fabrica Maranhense.....	São Luiz.....	2,000,000	1,500,000
Fiação e Tecidos Rio Anil.....	do.....	2,000,000	1,400,000
Tecidos S. Italo-Brasileira.....	São Paulo.....	2,000,000	2,000,000

¹ Manufactures both cotton and woolen goods.

Including the Companhia Nacional de Tecidos de Jute, of which mention has been made, there are 16 jute factories in the Republic, these operating approximately 3,300 looms. The jute is mostly imported from British India. Most of the product is used by the coffee producers.

The woolen-goods industry is stated to hold forth excellent prospects, although thus far it has not assumed the importance of the cotton or weaving industries. In a report submitted under date of August 11, 1917, Consul General Gottschalk stated that there is a lack of official figures concerning the extent of this industry and the internal revenue derived from it. However, an association known as the Centro Industrial has published certain data as to number of mills, looms, and spindles, and according to these figures there were 35 woolen mills in operation in 1915, thus distributed:

Location.	Mills.	Looms.	Spindles.
Federal District.....	11	497	1,000
State of Minas Geraes.....	1	24	750
State of Rio Grande do Sul.....	7	322	6,800
State of Rio de Janeiro.....	4	144	.....
State of São Paulo.....	12	377	1,566

Some of the above factories, however, are of relatively small importance. The industry is said to have employed 2,751 operatives in 1915.

INDUSTRIES OF SÃO PAULO.

The industries of São Paulo are extremely numerous. At least one-fifth of the 500,000 people of the capital city are engaged in manufacturing and kindred industries, and it ranks as one of the three great manufacturing cities of South America.

In his annual report for the year 1916, United States Consul Charles L. Hoover states that the 72 textile mills in the State employ 26,000 operatives and consume about 14,000 tons of cotton per year. Estimates place the value of the total production of textiles in 1916 at \$22,041,360, of which \$5,669,040 was represented by jute bagging and woolen, silk, and linen textiles and \$16,372,320 by cotton manufactures.

In São Paulo, Mr. Hoover continues, there are 134 shops, foundries, and factories engaged in metal working. Among the articles produced are coffee-hulling machinery, small rice mills, cane mills, plows, farm tools, metal parts of railway cars, street cars, carriages, stoves, enameled sanitary ware, aluminum kitchen ware, cast-iron pipe, iron kitchen ware, brassware for buildings, offices, and machinery parts; certain textile-mill machinery, bells, machine tools, woven-wire fence, and repair parts for machinery. Iron must be imported, and during 1916 the United States was almost the sole source of supply. Some factories have small furnaces for the utilization of scrap iron and scrap brass, scrap iron being used in the production of practically all castings.

The manufacturing industries in this district include a large number of establishments, many of which are small and employ only a few workmen. The character and the number of factories follow: Hats, 269; shoes, 67; hosiery, 21; white goods and shirts, 21; gloves, 20; sugar mills, 769; sugar refineries, 309; alimentary pastes, 218; canned goods, 27; packing houses, 2; crackers, 103; preserves, 174; milling of cereals, 541; mandioca flour, 231; dairy products, 53; vinegar, 34; breweries, 270; brooms and brushes, 19; soft drinks, 200; furniture, 304; vegetable oil, 6; starch, 2; rope, 16; trunks and bags, 56; harness and saddles, 248; tanneries, 6; paper and pasteboard, 3; articles of metal, 7; machinery, 65; foundries, 62; wood-working, 558; brick and tile, 972; lime, 47; wagons and carriages, 383; railway machine shops, 18; matches, 12; soap, 195; candles, 19; oils and resins, 30; paints, 9; chemical products, 18; pharmaceutical products, 9; cigars and cigarettes, 158; and others, 932.

INDUSTRIES OF BAHIA.

United States Consul Robert Frazer, jr., in a report dated June 10, 1916, gave the following information concerning the industries of Bahia:

According to the latest statistics published on the subject (in 1913), there were at that time a total of 83 industrial establishments of different kinds in the City of Bahia, having a combined capital of about \$10,000,000, an annual production of between \$8,000,000 and \$9,000,000, and a total of about 10,000 employees. Of the foregoing, something like 85 or 90 per cent are engaged in the textile (cotton and jute), sugar, and tobacco (cigars, cigarettes, and snuff) industries.

There are now 15 sugar mills of importance in operation in the State of Bahia, besides one in liquidation and one not working. These 15 have a total capital of \$5,525,000 (at present exchange), about 800 employees (not including field workers), and a combined average annual production of about 30,000 metric tons of sugar.

There are five important textile mills at Bahia, of which one makes jute bagging and the other four cotton goods. The jute mill employs approximately 400 persons, is capitalized nominally at \$125,000 (500 contos), and in 1915 declared a dividend of 24 per cent. It turns out annually approximately 20,000 pieces, containing 2,187,222 yards (2,000,000 meters) of goods. The four cotton mills each employ from 1,200 to 1,400 persons, and each turn out from 7,000,000 to 9,000,000 meters (7,655,278 to 9,842,500 yards) of goods per annum. While none of the four paid dividends in 1914, in 1915 three paid 8 per cent each and the other, although it paid no dividend, made a small profit.

RIO DE JANEIRO FLOUR MILLS & GRANARIES (LTD.).

There are a few foreign companies in the Republic interested in manufacturing. Among these may be mentioned the Rio de Janeiro Flour Mills & Granaries (Ltd.), a British company, registered in 1886. The authorized capitalization of the company is £800,000, of which £608,001 has been subscribed for and issued. The par value of the shares is £1. Approximately £25,000 of an original issue of £150,000 first-mortgage 5 per cent debentures remain outstanding. Shares were quoted in January, 1918, at 61s., this being equivalent to 305 per cent of par. Dividends have usually been at the rate of 15 per cent per annum, while in several of the years stock dividends or cash bonuses were paid. The reserve fund in 1916 amounted to £116,000 and the company was in a very prosperous condition. In 1910 the company decided to construct a cotton spinning and weaving mill and to make other improvements.

LOCAL MANUFACTURING COMPANIES

There follows a list of a few local manufacturing companies, capitalization and value of shares being indicated:

SHARES.

Companies.	Outstand- ing.	Par value.	Reserves.	Last sale.
	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>	<i>Milreis.</i>
Armazens Frigoríficos	6,000,000	200		
Brasileira de Automoveis	200,000	200	4,919	200
Brasileira de Carnes Congeladas	1,000,000	100		103
Brasil de Telegrapho sem fio	300,000	200		
Docas de Santos	60,000,000	200		451
Explosivos de Segurança	600,000	100	11,815	
Geral de Melhoramentos do Maranhão	3,200,000	100	497,337	40
Geral de Melhoramentos de Pernambuco	6,000,000	200		30
Industrial de Melhoramentos no Brasil	1,000,000	100	516,872	80
Melhoramentos na Bahia	6,000,000	200		
Melhoramentos no Espírito Santo	250,000	200	300,000	
Melhoramentos de São Paulo	6,000,000	200		
Porto de Victoria	3,000,000	200		
Sampaio Correa & Cia.	1,350,000	200		
Técnica e Importadora	200,000	200		
Viação e Construções	1,500,000	200	2,152,523	

DEBENTURES.

Companies.	Issues.	Total number.	Out- standing.	Par value.	Last sale.
	<i>Milreis.</i>			<i>Milreis.</i>	<i>Milreis.</i>
Armazens Frigoríficos	6,000,000	30,000	All.	200	
Brasileira Auto-Viação	1,000,000	5,000	All.	200	200
Brasileira de Minas	1,200,000	6,000	4,000	200	
Caminho Aereo Pão de Assucar	350,000	3,600	All.	100	
Centro Pastoris do Brasil	200,000	1,000	778	200	190
Docas de Santos	60,000,000	300,000	All.	200	200
Geral Melhoramentos em Pernambuco	a 8,000,000	16,000	All.	a 500	

a Francs.

SUMMARY.

This report has briefly outlined the development of the manufacturing industries of Brazil and has in a general way called attention to opportunities in the field. That expansion along manufacturing lines is certain is indicated by the general prosperity of the companies now in the field and the realization on the part of the people of the country that they are no longer wholly dependent on outside sources for their goods. Although the fuel problem has not yet been satisfactorily solved, the possible development of the coal mines and the vast amount of available water power will in time probably overcome these difficulties.

FOREIGN INVESTMENTS IN BRAZIL.

The great undeveloped and partly developed resources of the Republic of Brazil have proved a magnet to attract considerable sums of foreign capital. Great Britain and France have, as usual, taken the lead. Listings of Brazilian bonds and stocks on the London Stock Exchange amount to more than \$1,150,000,000, a sum that is believed, however, to be greater than the total of British investments in the country. Most of the Government bonds and some of the railway securities are also quoted in Continental markets, and many are held outside of Great Britain. Perhaps \$750,000,000 would be a fair and conservative estimate of British investments in Brazil, and

as has been indicated in this report, these cover almost every field of enterprise.

France has long favored Brazil, in preference to other South American countries, and its citizens are the holders of very large amounts of Government, State, and municipal bonds and securities of railways, banks, etc. Estimates of the aggregate of French capital in the field vary from \$400,000,000 to \$900,000,000. Probably \$500,000,000 would be a conservative figure.

Belgium is the holder of Government bonds and has a large interest in the Brazil Railway and a few other enterprises. There is probably \$150,000,000 of Belgian money in Brazil.

German influences in Brazilian investments have been considerable. Some of the Government bonds are held in Germany, the Teutonic chain of banks are important, and Germans residing either in the home country or Brazil have more or less extensively developed southern Brazil and are interested in public utilities, plantations, etc. One of the two German-owned railways in South America is located in Brazil. This line, the Blumenau Railway, is located in the State of Santa Catharina. The builder of this railway, which is 70 kilometers (44 miles) in length, received the official congratulations of the German Government and a decoration from the Kaiser at the date of the opening of the road for through traffic. Following the declaration of war by Brazil, the line was taken over by the Brazilian Government. Although no estimates of the aggregate capital investments of Germany in Brazil are available, it is safe to state that British and French interests in the field are considerably larger and more important.

There is a certain amount of Portuguese capital in Brazil. The relationship between the two countries is close, their interests are somewhat allied in a general way, and their language is the same. The Banco Ultramarino, a powerful and successful bank, is probably the most important Portuguese financial institution in the Republic. Portuguese capital is also said to be invested in guaranteed mortgages, coffee estates, etc.

Italian investments are principally confined to the State of São Paulo and neighboring districts. Italy has been a powerful factor in the development of the coffee district and is in no small way responsible for the progress of the city of São Paulo. Its banks are strong and profitable and form the keystone for Italian enterprise.

The United States during recent years has realized the potential wealth of Brazil and is to-day rapidly becoming a factor in its development. Cattle raising and meat packing, mining, and other fields of enterprise have attracted the attention of American financiers, and the National City Bank, with its several Brazilian branches, has assumed considerable importance. American investors hold bonds of the city of São Paulo, notes of the Brazilian Traction, Light & Power Co., and a few other Brazilian securities. The Brazil Railway, although incorporated in Maine, was practically wholly financed abroad, as were most of the Farquhar-Pearson enterprises. There is probably \$50,000,000 of American capital in Brazil, although this figure is simply an estimate.

The Brazilian Traction, Light & Power Co. is a Canadian enterprise, although large amounts of its securities are held in Great

Britain, the United States, and Brazil. With the exception of another public-utility company, it is the only important Canadian enterprise in the field.

The foregoing report has indicated that the amounts of local Brazilian capital invested in manufacturing and other fields of enterprise are surprisingly large. Such companies as the Companhia Docas de Santos and the Companhia Nacional Tecidos de Jute have been highly successful. There is probably more than \$100,000,000 of local capital invested in the textile industry, and there is considerable home capital in Government, State, and municipal securities, railways, public utilities, banks, insurance companies, etc.

As a final word it need only be said that Brazil is one of the largest and richest countries in the world and that opportunities to develop its marvelous resources are unlimited.

CHILE.

INTRODUCTION.

The Republic of Chile, with an area of approximately 292,500 square miles, is situated along a narrow stretch of land between the Andes and the Pacific Ocean, extending in the general direction of north and south for about 2,700 miles. The width of the country varies from about 65 to nearly 250 miles. The coast line of the Republic may be said to be 23 times greater than its average breadth. If one sailed from the coast of Labrador southward to the Guianas in South America he would cover no greater distance than if he had followed this length of the Chilean coast.

Chile's 3,870,023 inhabitants make up one of the hardiest and most progressive races in the Western Hemisphere. The country is developing fast, especially in the production and exportation of its vast mineral wealth. During the century 1810 to 1910 the mineral production of the Republic has been estimated as follows: Nitrate (since year 1830 only). \$1,225,300,000; copper, \$664,292,000; silver, \$298,695,000; coal, \$114,516,000; gold, \$68,084,000. In addition, large quantities of borax, salt, iodine, sulphur, iron, manganese, etc., are taken from the earth. The Republic may be divided into four distinct zones, as follows:

The northern or desert zone, extending from 17° 15' to 27° south latitude. In this zone are the cities of Iquique, Antofagasta, Taltal, etc. Herein are located the nitrate belt and very extensive deposits of copper, especially those found at the mines of the Chile Copper Co. at Chuquicamata. The country is virtually rainless and barren of vegetation, no rivers of any importance existing. Nevertheless, this zone is the center of the greatest natural wealth of the entire Republic. Several railways traverse the district and steamship service is excellent.

The second or mineral zone extends from the southern boundary of the desert zone as far south as 33°. Minerals of all descriptions are found in this district. The country is generally arid, although there is a fair amount of cultivation in the Central Valley.

The south-central or agricultural zone extends from 33° to 42° south, and in it are included the cities of Valparaiso and Santiago and the rich and fertile Central Valley. This valley contains a number of important rivers, some of which are navigable. In addition to its agricultural areas the Central Valley contains coal and other minerals and large timber areas.

The southern or island zone extends from 42° south to Cape Horn. This district, which includes the island of Tierra del Fuego and the territory of Magallanes, with their immense areas of sheep-grazing lands, is quite thinly populated.

Chilean foreign trade in 1917 reached the record total of \$389,588,-610. The previous record figure was for 1916, with a total for exports and imports of \$268,678,534. In 1912 and 1913 Chilean foreign trade amounted to \$261,954,195 and \$264,927,313, respectively. In 1917 the exports amounted to \$259,985,495 and the imports to \$129,-603,115; the United States furnished \$63,534,755 worth of the imports and took \$155,006,103 worth of the exports.

FINANCES AND PUBLIC DEBT.

As an indication of the national income, expenditure, and public debt of Chile the following table is submitted. The heavy decrease in national income during the years 1915 and 1914 may be attributed almost wholly to the decrease in customs receipts resulting from the European war. The figures are expressed in Chilean gold pesos of 18d. (equal to \$0.365 United States currency) :

Years.	Income.	Expenditure.	Public debt.
	<i>Gold pesos.</i>	<i>Gold pesos.</i>	<i>Gold pesos.</i>
1911.....	197,502,232	199,013,800	575,658,400
1912.....	228,295,252	235,126,800	567,818,100
1913.....	220,173,450	215,476,800	625,819,200
1914.....	141,008,723	175,461,800	616,481,600
1915.....	124,543,108	175,534,908	607,449,003

Customs receipts for 1915 amounted to 91,397,396 Chilean gold pesos, as compared with 159,259,254 pesos in 1913. The general national income for 1916 was much larger than for 1915, and a surplus was stated to have been shown, although figures at the date of writing are not available. There was an increase in customhouse revenue of approximately 48,000,000 Chilean gold pesos, of which increase \$33,000,000 was derived from the increased exports of nitrate. The total tax on the exportation of nitrate for 1916 amounted to 100,273,707 Chilean gold pesos. The receipts and expenditures of the Government for the year 1917 were estimated as follows:

	Paper pesos.	Gold pesos of 18d.
Receipts.....	128,550,000	81,540,000
Expenditures.....	194,284,356	70,825,014

Of the estimated expenditures as stated above, 3,846,000 paper pesos and 22,463,000 gold pesos have been provided by loans and special legislation.

The national assets of Chile were estimated as of December 31, 1915, to be valued at 417,675,275 paper pesos and 828,105,405 gold pesos of 18d. State railways were valued at 32,194,946 paper pesos and 228,105,405 gold pesos of 18d. In addition, the Arica-La Paz Railway was carried at a valuation of 73,853,153 paper pesos.

The conversion fund, as of December 31, 1915, was held as follows: In Great Britain, £6,019,727; in Germany, 41,708,692 marks; in Chile, 3,643,634 gold pesos.

A total of 150,000,000 paper pesos were in circulation December 31, 1915.

A brief résumé of the funded debt and responsibilities of the State follows:

Character of obligations.	Amount.	Character of obligations.	Amount.
EXTERNAL DEBT, DEC. 31, 1915.		RESPONSIBILITIES OF STATE—CON.	
External bonds <i>a</i>	£32,556,380	(b) In Chilean gold of 18d.—Con.	<i>Gold pesos.</i>
Treasury bills <i>b</i>	2,000,000	Paper money, four series.....	150,000,000
Total.....	34,556,380	Deficit in account current.....	49,227,840
RESPONSIBILITIES OF STATE.		Total.....	204,843,840
(a) In pounds sterling:		(c) In currency:	<i>Paper pesos.</i>
North Longitudinal Railway.....	3,055,750	Annuities.....	34,507,735
South Longitudinal Railway.....	4,028,000	3 per cent loan.....	1,354,853
Chilean Transandine Railway.....	967,140	Mortgage loan.....	1,997,827
Total.....	8,048,890	Model-houses bonds.....	2,804,300
(b) In Chilean gold of 18d.:	<i>Gold pesos.</i>	Deficit in accounts current.....	34,721,000
Bonds.....	5,616,000	Miscellaneous.....	853,119
		Total.....	76,238,839

a General description in later paragraph.

b Five per cent; matured Dec. 31, 1916.

The rate of exchange for the paper peso is subject to wide fluctuations. As of January 1, 1918, the value was \$0.2825 United States currency per peso, as compared with \$0.213 April 20, 1917, and \$0.14 July 1, 1916. By July 1, 1918, the exchange rate had risen to about \$0.33.

The total debt of Chile as of December 31, 1915, including the 150,000,000 paper pesos of money outstanding, amounted to 607,449,-003 gold pesos, equal to 166.81 gold pesos per head of population.

EXTERNAL LOANS.

The external loans of the Republic, dates of issue, amounts originally issued and outstanding December 31, 1915, are as follows¹:

Date of issue.	Interest rate.	Amortization.	Original issue (pounds sterling).	Amount outstanding Dec. 31, 1915.
	<i>Per cent.</i>	<i>Per cent.</i>		
(1) 1885.....	4½	½	£808,900	£489,500
(2) 1886.....	4½	½	6,010,000	3,950,400
(3) 1887.....	4½	½	1,160,200	766,000
(4) 1889.....	4½	½	1,546,400	1,178,460
(5) 1892.....	5	1	1,800,000	1,386,700
(6) 1892.....	5	1	149,000	80,000
(7) 1893.....	4½	½	630,000	470,600
(8) 1895.....	4½	½	2,000,000	1,593,400
(9) 1896.....	4½	½	285,000	213,740
(10) 1896.....	5	½	4,000,000	3,326,100
(11) 1896.....	5½	2	200,000	51,700
(12) 1905.....	5	1	1,350,000	1,214,000
(13) 1906.....	4½	2	3,700,000	2,737,320
(14) 1909.....	5	1	3,000,000	2,892,400
(15) 1910.....	5	1	2,600,000	2,446,700
(16) 1910.....	4½	1½	275,000	253,200
(17) 1911.....	5	1	4,905,000	4,681,240
(18) 1911.....	5	1	5,000,000	4,825,220
Total.....			39,399,500	32,556,680

¹ EDITOR'S NOTE.—Figures that have become available since the preparation of the text of this report show that Chilean external bonds outstanding December, 1916, amounted to £31,808,640, representing unpaid portions of 18 different loans dating from 1885. Two of these loans were placed through the Deutsche Bank and most of the others through London concerns. In addition, treasury bills amounted to £676,090 (1916), making a total of £32,484,730. The internal debt December, 1916, amounted to £16,227,-000, 155,505,408 gold pesos, and 73,558,361 paper pesos. Municipal loans December, 1916, were as follows: Consolidated debt, 21,119,594 gold pesos; floating debt, 12,863,628 paper pesos.

Interest and sinking funds for the loans numbered 1, 6, and 7 are payable at the London City and Midland Bank, London, England; for the loans numbered 4 and 13 at the Deutsche Bank, Germany; for the loan numbered 11 at J. Henry Schroeder & Co., London, England. N. M. Rothschild & Sons are the bankers for all of the other Chilean loans listed above.

The sinking funds applicable to the above loans are cumulative, the bonds being drawn for redemption at par. In most cases the Government may retire the issues as a whole at par. Interest on all of the issues is payable in sterling, although the loans numbered 4, 9, 13, 14, 15, 17, and 18 are also payable in marks. The loans numbered 9, 14, 15, 17, and 18 are payable in Paris as well as in London and Berlin. Holders of the bonds numbered 14, 15, 17, and 18 may also cash them at Brussels and Amsterdam. The debt amortized by means of the above-mentioned sinking fund to December 31, 1915, totaled £6,843,120. During the year 1915, £720,660 bonds were amortized.

The 4½ per cent loan of 1885 was issued for the purpose of consolidating old loans. The bonds were brought out by the London City and Midland Bank and the original offering price was 89. The highest price for them since January, 1911, was par. The quotation January, 1918, was 89 (London Stock Exchange). The 1886 loan (issued by N. M. Rothschild & Sons) was also for consolidation purposes. The issue price was 98½, and 90 was the approximate price in January, 1918.

Loan number 3, the 1887 issue, is known as the Tarapaca Saltpetre Works loan. Its original price was 97½ and the January, 1918, London quotation about 86.

The 4½ per cent bonds of 1889 were originally offered by the Deutsche Bank in Berlin and London. Most of the bonds are held in Germany, in which country the sinking fund is operated. The original issue was for 31,546,396 marks, and the offering price was approximately 102 per cent. The London quotation for the bonds January, 1918, was approximately 79 per cent. The high price since 1911 was 99.

The 5 per cent loan of 1892, issued shortly after the close of the Chilean Revolution, was offered publicly by N. M. Rothschild & Sons in London at 95 per cent. The high price of the bonds since 1911 was 104 per cent. The quotation January, 1918, was 93.

The 4½ per cent loan of 1893 was issued to the Peruvian Corporation in part settlement of the debt of Peru accumulated prior to the war between Chile and Peru. The corporation resold these bonds through the London City and Midland Bank, some at 84½ and others, following the rise in the price of Chilean securities, at 94. These bonds have sold as high as 98 since January, 1911, and in January, 1918, were quoted at approximately 89.

The 4½ per cent loan of 1895 and the 5 per cent loan of 1896 were both publicly offered by N. M. Rothschild & Sons, the former loan at 93½ per cent and the latter at 95½ per cent; 82 and 88 were the approximate January, 1918, prices, and 98 and 103½, respectively, the high prices since 1911. A large portion of the 1896 loan is held on the Continent, in Paris, Berlin, Amsterdam, Brussels, etc.

The 5 per cent loan of 1905 was issued at 95½ and offered for public subscription in Chile, as well as in London and Paris; 86 was the

approximate London quotation January, 1918. The $4\frac{1}{2}$ per cent loan of 1906 differs from most of the other loans in that the sinking fund amounts to 2 per cent per annum, cumulative. The bonds were offered for public subscription at approximately 94 $\frac{1}{2}$ by the Deutsche Bank in Berlin and by Speyer Bros. in London. The January, 1918, quotation was 77-79. The high price since 1911 was 98.

The £3,000,000 5 per cent loan of 1909 was issued to provide funds for the reconstruction of Valparaiso following the earthquake of 1908. The bonds were offered at 96 $\frac{1}{2}$ for public subscription in London, Berlin, Paris, Hamburg, Amsterdam, and Chile. The January, 1918, quotation on the London Stock Exchange was 86. The high price since 1911 was 103.

The 5 per cent loan of 1910 was issued to provide funds for the construction of the Arica-La Paz railway and to provide additional funds for the reconstruction and improvement of Valparaiso. The bonds were offered in London, in the Continental cities mentioned in the paragraph next above, and in Brussels at 99. The January, 1918, price was 86 (high since 1911, 104).

The two issues of 1911 were for the purpose of building certain port works, also for public improvements at Santiago, Valparaiso, and Valdivia. The port improvements included the development of the harbor of San Antonio and the construction of docks there. This port is intended as a place of entry for goods destined to Santiago, the idea being to reduce the congestion at Valparaiso and reduce transportation charges. The bonds were issued at 98 $\frac{1}{2}$ by N. M. Rothschild & Sons in the cities enumerated in the two preceding paragraphs. Both issues sold as high as 103 $\frac{1}{2}$ and were quoted January, 1918, at 86.

The other external bond issues were for the purpose of purchasing the Copiapo Railway, the Coquimbo Railway, etc. These small issues are not actively traded in on the European stock exchanges. The January, 1918, quotation for the Coquimbo Railway issue was 72-75.

INTERNAL LOANS OUTSTANDING.

The internal obligations of the Republic have been listed in a preceding paragraph. The internal bonds are known as the Treaty of Peace Chile-Bolivia 5 per cent issue. The original amount was 6,500,000 gold pesos, of which 5,616,000 were outstanding December 31, 1915. The 3 per cent debt authorized under the law of 1837 was originally outstanding to the amount of 4,266,245 paper pesos. Approximately 1,250,000 paper pesos bonds were outstanding in April, 1917.

MUNICIPAL FINANCES AND LOANS.

On several occasions Chilean municipalities have been borrowers abroad. The loans are, as a rule, guaranteed by the Republic. Such obligations have enjoyed a ready market. The debts of the principal municipalities as of December 31, 1914 (latest data obtainable), were as follows:

Municipalities.	Consolidated debt.		Floating debt, paper pesos.	Total paper pesos.	Total gold pesos.
	Paper pesos.	Gold pesos of 18d.			
Tacna.....		33,018			33,018
Arica.....	57,106			57,106	
Antofagasta.....		2,666,667	297,718	297,718	2,666,667
Tocopilla.....			60,000	60,000	
Taltal.....			22,284	22,284	
Santa Luisa.....	13,479		10,000	23,479	
Chanaral.....	20,000			20,000	
Caldera.....			12,000	12,000	
Quillota.....	57,915		21,265	79,180	
Valparaiso.....	1,321,000		4,175,871	5,496,871	
Vina del Mar.....	3,824,105		969,907	4,794,012	
Santiago.....	7,312,200		5,309,300	12,621,500	
Providencia.....	273,292		22,250	295,542	
Rancagua.....			22,000	22,000	
Talca.....	670,171		14,792	684,963	
Concepcion.....			132,134	132,134	
Penco.....	4,881		30,000	34,881	
Temuco.....	220,763		150,000	370,763	
Valdivia.....			11,718	11,718	
Puerto Montt.....	11,520			11,520	
Ancud (Chiloe Island).....			4,111	4,111	
Punta Arenas.....	830,320		390,000	1,220,320	
Total, including other municipalities.....	14,651,192	2,699,684	11,746,854	26,398,046	2,699,684

Antofagasta (population 75,000) has outstanding a loan of £200,000, bearing interest at 5 per cent per annum. These bonds are to be retired by December 31, 1939, by means of a 2 per cent sinking fund. The bonds are unconditionally guaranteed as to principal and interest by the Government of Chile, and interest is payable at William Deacon's Bank (Ltd.), of London. The issuance price was 97, and the purpose of the loan was to provide funds for street paving, bathing houses, various municipal improvements, etc. The bonds sold January, 1918, on the London Stock Exchange at 91. Approximately £186,000 remained outstanding January, 1918. The ratable value of property was stated to be £4,630,000. The city has no other external debt. Local taxes on alcohol, etc., are provided for the service of the loan.

Valparaiso has a small external loan, which is largely held in Great Britain. The bonds bear interest at $5\frac{1}{2}$ per cent per annum, payable in sterling. The original issue was £200,000, of which all except approximately £39,400 have been retired through a sinking fund. The bonds, which are extremely inactive, sold at 94 in January, 1918. Interest has been regularly paid.

In October, 1916, the Guaranty Trust Co. of New York purchased from the Water Board of Valparaiso \$471,000 United States gold 6 per cent bonds, redeemable in 1939 or earlier through the operations of an annual sinking fund. The loan was offered in New York on a 6.30 per cent basis. The bonds are unconditionally guaranteed as to principal and interest by the Republic of Chile. The proceeds will be used to enlarge and further develop the waterworks.

Practically the entire water supply of the city of Valparaiso is served by this water system. The water board is administered by a board of directors consisting of (1) the governor of the Province, (2) three citizens of Valparaiso appointed to office by the National Government, and (3) another director appointed by the municipality itself.

In 1912, £250,000 5½ per cent bonds of the Valparaiso Water Board were sold in London at 99, being publicly offered by J. Henry Schroeder & Co. The bonds are unconditionally guaranteed as to principal and interest by the Government and are being retired annually by means of a sinking fund, which will amortize the entire issue prior to October 1, 1930. Interest is payable April and October. Approximately £225,000 of the bonds remained outstanding January, 1918. The bonds sold as high as 105½ prior to the outbreak of the war. The January, 1918, quotation on the London Stock Exchange was 91.

The municipality of Concepcion (population approximately 65,000) has outstanding an external loan, the original issue of which was for £150,000 bonds, bearing interest at 5½ per cent per annum and guaranteed as to principal and interest by the Government. The bonds, issued 1913 at par, sold at 104 prior to the war. The January, 1918, price was 94. Approximately £136,200 of the bonds remained outstanding at the close of 1917.

The city of Vina del Mar, a residential suburb of Valparaiso, noted as being one of the most beautiful cities in South America, has outstanding £186,340 of an original issue of £200,000 5 per cent bonds, which were publicly offered in 1913 by the London City & Midland Bank (Ltd.) in Great Britain at 90½. The bonds are unconditionally guaranteed by the Chilean Government as to both principal and interest. The January, 1918, price was approximately 81.

The internal bonds of the city of Santiago carry interest at 8 per cent per annum. The selling price early in 1917 was 91½.

PRESENT SITUATION AND PROSPECTIVE REQUIREMENTS.

The Republic of Chile will require funds during the next few years for the construction of waterworks and drainage systems in various locations, for the completion of port works at Port Antonio and Valparaiso, and for the construction of ports at Antofagasta, Arica, Valdivia, Constitucion, Iquique, Talcahuano, etc. It is likewise contemplated that further railways will be constructed under State ownership and that large sections of the existing systems will be improved and additional equipment acquired. The country during the European war has handled its debt payments in a creditable manner. Thus far little American capital has gone into the national obligations of Chile, despite the fact that American interests, through ownership of the Chile, Braden, and other copper properties, extensive nitrate and iron deposits, and various other undertakings, have become an important factor in the development of Chile.

FOREIGN INVESTMENTS IN CHILE.

Thanks to the stability and enterprise of the Chilean Government, large sums of foreign capital have been attracted to the field. While a very large proportion of the money has gone into nitrate and mining enterprises, considerable sums have been invested in national loans, railroads, public utilities, banks, etc. Investments have generally been successful, proportionately more successful than in most other Latin American countries. A recent estimate made by the author, from official sources, placed Great Britain's investments in

this field at approximately \$340,655,000. This includes a very large proportion of the foreign loans, practically all of the independent railways, a number of important nitrate oficinas, coal properties, mines, etc.

The United States, with its capitalists and investors controlling the important Chile Copper Co. and other mineral properties, would probably come second on the list of nations. The Chile Copper Co. is capitalized at about \$110,000,000 United States gold, its securities selling in the market at nearly this price. The Braden Copper Co. (market value of securities in excess of \$60,000,000) is American, and Americans are interested in other copper mines. The Bethlehem Steel Corporation owns immense iron ore deposits and the Duponts a valuable nitrate tract. The National City Bank of New York is located at Valparaiso and is the pioneer American bank in this field. An estimate of \$225,000,000 would probably cover the capitalization of American investments in Chile.

Germany holds a fair-sized amount of Chilean bonds, and has invested about 5 per cent of the capital employed in the nitrate industry. German merchants and importers are numerous in Chile, and German capital is invested in banks and insurance companies. About 5 per cent of the fire-insurance business is handled by German companies (47 per cent by British companies). In and about Valdivia, in south-central Chile, Germans control most of the various enterprises. These include a shipyard, a sugar-refining plant, a plant for the extraction of fiber from flax, a brewery, and a number of saw-mills. The public utilities in Valparaiso and Santiago are also partially under Teutonic control. Germany's total investments in Chile would probably total at least \$75,000,000—possibly \$100,000,000. French capital has been placed in Government loans, the iron and steel industry, a bank, and a limited number of other enterprises, while Holland and Belgium hold a number of Chilean national bonds. A Norwegian company, registered in Santiago, owns a steam fleet engaged in the whaling industry, and there is a small amount of Argentinian capital in southern Chile and Peruvian capital in Arica and Tacna.

BANKS AND BANKING.

There are at the present time no fewer than 23 banks in the Republic of Chile, including 9 foreign institutions, among which are the National City Bank of New York, the Anglo-South American, London and River Plate, Mercantile Bank of Bolivia, one French, and three German banks. The banks, generally speaking, are prosperous, and dividend returns are substantial. The German banks in past years wielded the greatest influence among the foreign institutions. The three German banks have 18 establishments throughout Chile, their business in southern sections of the Republic being particularly large. The well-known British institution, the Anglo-South American Bank, maintains 10 branches and is a factor of considerable importance in Santiago, Valparaiso, and the nitrate districts. The London & River Plate Bank has an office at Valparaiso, and the same is true of the National City Bank of New York and the Banco Italiano. The French Bank (Banco Francés), opened March 1, 1917, is at Santiago.

Largest and most important among the banks of Chile is the Banco de Chile, capitalized at 40,000,000 paper pesos (\$8,800,000 United

States currency at present rate of exchange). The bank was formed in 1893 as the result of the consolidation of the Agrícola Bank, the Banco Nacional de Chile, and the Valparaíso Bank. There are branches in all the important centers. Deposits total 170,196,418 paper pesos and 23,695,957 gold pesos of 18d. Reserves as of December 31, 1916, totaled 22,000,000 gold pesos. Profits during the second half of 1916 were 3,667,531 paper pesos, and the dividend for the period (8 per cent) totaled 3,200,000 paper pesos. The 100-peso shares of the bank are quoted at approximately 205 and are listed in both Santiago and Valparaíso. Dividends have varied from 15 to 18 per cent per annum. The bank is in reality very closely allied to the Government.¹

Probably the second bank in importance is the Banco Español de Chile, which has a capitalization of 30,000,000 paper pesos and a reserve of 12,000,000 paper pesos and 863,715 gold pesos of 18d. Deposits in March, 1917, totaled 100,691,025 paper pesos and 3,299,868 gold pesos. The profit for the six months ended December 31, 1916, amounted to 2,216,111 paper pesos and the dividend (6 per cent) to 1,800,000 paper pesos. The rate of 12 per cent per annum has been maintained for a number of years. In May, 1917, 100-peso shares were quoted at 148.

The Banco Nacional is an important institution, capitalized at 16,000,000 paper pesos and having a reserve fund of 4,000,000 paper pesos, as well as various other funds to the amount of 3,117,465 paper pesos. The profits for the six months ended December 31, 1916, amounted to 1,111,020 paper pesos. Dividend payments for the six-months period totaled 960,000 paper pesos (6 per cent). Deposits in March, 1917, totaled 30,213,312 paper pesos and 1,280,283 gold pesos of 18d. The 100-peso shares of the bank have only been paid in to the amount of 40 pesos; these shares sold April, 1917, in the market at about 50 pesos.

The bank of A. Edwards & Co., which has its principal office at Valparaíso and a branch at Santiago, has an authorized capital of 25,000,000 paper pesos, of which 10,000,000 pesos is outstanding. The stock of the institution is privately held. Deposits in March, 1917, totaled 19,515,018 paper pesos and 3,167,798 gold pesos of 18d.

The Banco Santiago, a prosperous institution located in the capital, and the usual depository for the Catholic Church and its institutions, is capitalized at 8,000,000 paper pesos and has reserves of 2,543,983 pesos. During the last half of the calendar year 1916 the bank realized a profit of 616,425 paper pesos. The dividend for the period was 7 per cent, making 14 per cent for the year, which is the usual rate. Deposits as of March 1, 1917, totaled 14,088,761 paper pesos. The 100-peso shares were worth in April, 1917, about 140.

Among the smaller banks the Banco Popular stands high in importance. Its capitalization is 1,000,000 paper pesos, on which a profit of 82,363 pesos was realized during the last half of 1916. The dividend for the six months (7 per cent) totaled 70,000 paper pesos. This institution is an old one, having been founded in 1887. Its shares were quoted in April, 1917, at 133.

The Bank of Talca and the Bank of Concepción are important factors in the development of southern and central Chile. The former

¹ For 1917 the net profit was 4,470,172 gold pesos. The dividend was 8 per cent on 40,000,000 gold pesos shares; dividends were also paid on installments of new shares which will increase capital to 60,000,000 gold pesos.

institution has deposits of 12,638,035 paper pesos and the latter of 9,452,781 paper pesos. The capitalization of these banks is 850,000 and 500,000 paper pesos, respectively.

The Banco Curico is capitalized at 3,000,000 paper pesos and earned a profit of 236,008 pesos during the second half of 1916. The dividend was 7 per cent. Reserves totaled 1,043,238 pesos. The bank is in a very prosperous condition.

The far south of Chile (the Magallanes Territory and Tierra del Fuego) is dependent on branches of certain of the aforementioned institutions and upon the Banco de Punta Arenas, located at Punta Arenas. This latter bank has increased in size and prosperity during recent years, its capital to-day amounting to 4,000,000 paper pesos (10,000,000 pesos authorized), with reserve funds exceeding 700,000 paper pesos.

The list of local banks, as enumerated, is not by any means a complete one. Among the other institutions may be mentioned the Unión Comercial, located at Santiago; the Bank of the Republic, the two local banks in the far northern Province of Tacna (the Bank of Tacna and the Mercantile Bank of Tacna), and several other banks serving local communities.

Among the foreign banks doing business in Chile, it may be mentioned that at the present time and under present conditions the British-owned Anglo-South American Bank is the most important. Its deposits as of March 1, 1917, totaled 35,993,918 paper pesos and 27,357,866 gold pesos of 18d. The German Transatlantic Bank (Banco Alemán Transatlántico) as usual heads the list of German banks, with deposits of 21,002,620 paper pesos and 13,532,607 gold pesos of 18d. The Bank of Chile and Germany (Banco de Chile y Alemania), the other important Germanic institution, had deposits totaling 19,577,645 paper pesos and 208,410 gold pesos of 18d. The English-owned London and River Plate Bank held deposits to the amount of 4,991,922 paper pesos and 8,224,609 gold pesos of 18d. The German Bank of South America, a much smaller institution, had deposits of 1,657,591 paper pesos and 1,969,693 gold pesos. This last-named institution maintains seven branches throughout the Republic. It was founded in the year 1886 and is controlled by Hamburg capitalists, who likewise have banking interests in the Republic of Brazil.

The various national banks pay interest rates varying from 1 per cent on accounts current to 5 and 6 per cent on long-term deposits. Generally speaking, they are prosperous.

In addition to the national banks there are two very important savings institutions, handling deposits largely of the poorer classes. These two banks are known as the Caja Nacional de Ahorros and the Caja de Ahorros de Santiago. The former institution maintains 22 banks and is the larger and more important. The number of accounts and the amounts deposited February 28, 1917, were as follows:

Savings institutions.	Accounts.	Deposits, paper pesos,
Caja Nacional de Ahorros	482,043	84,899,275
Caja de Ahorros de Santiago	201,234	32,760,215
Total	683,277	117,659,490

The interest paid to depositors varies from 3 per cent on accounts current to 6 per cent on long-time accounts. These institutions play a very important part in the economic and financial development of Chile.

The Caja de Crédito Hipotecario is an institution under State supervision making loans on real estate to landowners. These loans are made after thorough appraisements and are in the form of bonds which have been issued in various series bearing interest from 6 to 8 per cent. These bonds are outstanding in series as follows:

Bonds.	Chilean paper pesos.	Francs.	Pounds sterling.
8 per cent bonds.....	215,176,079		
7 per cent bonds.....	91,694,237		
6 per cent bonds.....	69,057,380		623,100
5 per cent bonds.....	1,671,620	46,925,086	7,326
Total.....	377,599,316	46,925,086	630,426

Quotations during the months of February and March, 1917, for the so-called "letras de la Caja" averaged 86 for the 6 per cent, 90 for the 7 per cent, and 97 for the 8 per cent.

In addition to the Caja de Crédito Hipotecario there are three privately operated institutions of a like character. These are the Banco Hipotecario de Chile, the Banco Chilena Garantizador de Valores, and the Banco Hipotecario de Valparaiso.

The shares and bonds of these mortgage banks were quoted on the Valparaiso and Santiago Stock Exchanges in May, 1917, as follows:

Title.	Shares.		Bonds.		
	Par value.	Selling price.	8 per cent.	7 per cent.	6 per cent.
	<i>Pesos.</i>	<i>Pesos.</i>	<i>Pesos.</i>	<i>Pesos.</i>	<i>Pesos.</i>
Banco Hipotecario de Chile.....	200	543	94	89	87
Banco Chilena Garantizador de Valores.....	100	168	91	90	90
Banco Hipotecario de Valparaiso.....	100	120	98	91	85

The Banco Hipotecario de Valparaiso during the second half of 1916 earned a profit of 134,089 paper pesos. Dividend payments for the half year were 100,000 paper pesos, equal to 5 per cent on the 2,000,000 paper pesos shares outstanding. Reserves for various purposes amounted to 547,846 paper pesos.

These mortgage-bank securities are much in favor among Chilean investors, forming a very large proportion of the daily transactions on the two local Stock Exchanges. Their yield return is large and as they are well secured by mortgage on property which should advance in value once the war is over, they may be said to be attractive.

There follows a table showing the stock exchange quotations as of May, 1917, of the shares of the leading Chilean banks:

Banks.	Par.	Price.	Banks.	Par.	Price.
Banco de Chile.....	100	203½	Popular.....	100	131
Banco Español de Chile.....	100	151	República.....	100	41
Garantizador de Valores.....	100	a 168	Santiago.....	100	140
Hipotecario de Chile.....	200	a 543	Unión Comercial.....	20	8
Hipotecario de Valparaíso.....	100	a 120	Italiano.....	20	8
Nacional.....	b 100	50			

a At the close of the year 1914 the shares of the three mortgage banks under private ownership were quoted: Banco Chilena Garantizador de Valores, 115; Banco Hipotecario de Chile, 390; and Banco Hipotecario de Valparaíso, 100. During a similar period other bank shares have mostly had a corresponding advance, as for example the Banco Nacional shares, which sold below 40 at the beginning of the year 1915.

b Of this 100 pesos a total of 40 pesos has been paid in.

INSURANCE COMPANIES.

The insurance business in its various phases has assumed large proportions in Chile. A number of foreign companies (mostly British, with a few German) have entered the field and have secured a very large share of the business. The Government receives from the companies a tax equal to 2 per cent of the premiums received by them. As an indication of the amount of business done by the insurance companies, local and foreign, the following table is appended:

Companies.	Insurance effected from Jan. 1 to Sept. 30, 1916.	Premiums paid.
National.....	<i>Paper pesos.</i> 756,542,022	<i>Paper pesos.</i> 8,186,550
Foreign.....	1,002,389,212	10,452,484
Total.....	1,758,931,234	18,639,034

An estimate made several years ago indicated that of the total insurance handled 48 per cent was by local companies, 47 per cent by British companies, and 5 per cent by German companies. Since this estimate was made the proportion written by foreign companies has increased, amounting during the period from January 1 to September 30, 1916, to 57 per cent of the total.

One of the important local companies is La Alianza Chilena, capitalized at 2,000,000 paper pesos. This company earned during the six months ended December 31, 1916, a profit of 414,163 pesos, of which 160,000 pesos was paid as an 8 per cent dividend and 140,000 pesos appropriated to cover the dividend of 7 per cent paid July last. Reserves of various kinds as of December 31, 1916, amounted to 1,269,952 pesos. The 25-peso shares of this company were quoted in May, 1917, at 40.

La Chilena Consolidada likewise has a capital of 2,000,000 paper pesos. Its half-year profits totaled 207,930 pesos, of which 160,000 pesos was paid as an 8 per cent semiannual dividend. Reserves amounted to 1,838,868 pesos.

La Española, one of the richest of the smaller companies, has a capitalization of 200,000 paper pesos and reserves, shareholders' funds, etc., of 2,324,914 paper pesos. Profits for the second half of 1916 totaled 192,803 pesos, of which 100,000 pesos was distributed as a dividend of 50 per cent and the balance carried to shareholders' and dividend funds. The 10-peso shares of this company sold in May, 1917, at 140.

La Francesa earned a profit of 60,448 paper pesos during the second half of 1916. A dividend of 20,000 pesos (10 per cent) was paid on the 200,000 paper pesos stock of the company. Reserves amounted to 435,583 pesos.

The Anglo-Chilena company, a new concern, has a capitalization of 500,000 paper pesos.

The Franco-Chilena company made a profit of 47,082 paper pesos during the second half of 1916. Dividend payments amounted to 40,000 paper pesos. The capitalization is 1,000,000 paper pesos.

La Italia made a profit of 73,819 paper pesos during the six months' period. Of this sum, 50,000 pesos was paid as a semiannual dividend of 10 per cent. This company's statement as of December 31, 1916, showed various reserves to the amount of 796,559 paper pesos and a capitalization of 500,000 paper pesos.

La Protectora, a small but successful company, earned during the period 65,156 pesos on the 100,000 pesos stock outstanding. The dividend for the period was 60 per cent, a further indication of prosperity. The 25-peso stock of this company sold in the market in May, 1917, at 300 pesos per share. Reserves as of December 31, 1916, totaled 950,533 pesos.

La Previsora's profits were 30,070 pesos, which was credited to various funds. The capitalization is 200,000 pesos and reserves total 227,008 pesos.

Among the various other companies operating in the field the following may be mentioned:

(1) La Alemana; which has a capitalization of 2,000,000 pesos, of which 300,000 pesos has been paid in. Reserves and funds amount to 559,373 pesos.

(2) La Comercial, founded in 1899.

(3) La República, with a paid-in capital of 500,000 pesos.

(4) La Nacional, with a paid-in capital of 200,000 pesos and reserves to the amount of 2,323,914 pesos. This company, the 25-peso shares of which sell at 550 pesos (May, 1917), has paid 1,520,000 pesos in dividends since beginning business January 1, 1899.

(5) La Mundial (the "World"), with a capital of 2,000,000 pesos.

Most of the companies handle a general business—fire, life, accident, etc.

As an indication of the prosperity of the various Chilean insurance companies, the following table is appended, showing par value and market value of the shares of the various companies:

Companies.	Par value of stocks.	Market price May, 1917.	Companies.	Par value of stocks.	Market price May, 1917.
	<i>Paper pesos.</i>	<i>Paper pesos.</i>		<i>Paper pesos.</i>	<i>Paper pesos.</i>
La Alemana.....	75	200	La Franco-Chilena.....	20	25
La Alianza Chilena.....	25	40	La Germania.....	25	25
La America.....	25	62	La Iberia.....	57½	55
La Americana.....	50	85	La Internacional.....	25	92
La Araucania.....	25	25	La Italia.....	100	213
La Central.....	25	35	La Nacional.....	25	555
La Comercial.....	50	125	La Nueva España.....	75	90
La Chilena Consolidada.....	25	49	La Protectora.....	25	300
La Española.....	10	140	La Santiago.....	50	163
La Francesa.....	50	110	La Unión Chilena.....	50	530

RAILWAY DEVELOPMENT.

Chile has, during recent years, developed a large railway mileage. Railways extend from near Iquique, 20° south, to Puerto Montt, 42° south, forming an artery through the central sections of the Republic; while from almost every port and seacoast town lines radiate inland, either to connect with the railways running north and south or to reach some important center of mining or agricultural wealth. The Republic contains the termini of three international lines, two extending into Bolivia and one into Argentina. Future plans call for the construction of additional lines to Argentina, as well as the construction of new local lines and the extension of existing railways. As of December 31, 1916, the total mileage of railways in operation in Chile was 6,014 (9,678 kilometers). On the date mentioned, 148 miles (237 kilometers) of new lines were under construction. A considerable additional mileage is contemplated. The gauges of the existing railways vary from 2 feet 6 inches, used by the Antofagasta & Bolivia Railway, to 5 feet 6 inches, used by the State Railways in central Chile. There are in all six different gauges in use. A very large proportion of the railway mileage is under State control.

Chile was first placed on the railway map in 1849, in which year William Wheelwright, an American, founder of the Pacific Steam Navigation Co., completed the construction of a line from the port of Caldera to the mining town of Copiapo. This is the oldest existing line in Latin America and, with the exception of the Demarara Railway in British Guiana, is the oldest line in South America.

A short time after the completion of the Caldera-Copiapo line, Wheelwright, together with another American, Allen Campbell, surveyed the existing Government line between Valparaiso and Santiago. A few years later construction work was begun by S. W. Greene, of Rhode Island. The line was finally completed in the year 1863 by Henry Meiggs, of the United States, famous as the builder of the Central Railway of Peru. It is said that when Meiggs took over the contract to complete the road (this was late in 1861) it was stipulated that the line must be completed in three years. A fine of \$10,000 per month was to be paid by Meiggs for each month's delay in the completion of the railway, and he was to receive \$10,000 for each month gained in carrying out the contract. So fast did Meiggs push the construction of the railway that more than a year was gained. The cost of this line was, it is stated, \$11,300,000 United States currency.

Chile for many years has favored State ownership of railways and has acquired or constructed a large mileage. As of December 31, 1915, these railway properties were valued by the Government as follows:

Railways.	Paper pesos	Gold pesos of 18d.
State Railways.....	32, 194, 946	228, 105, 405
Arica-La Paz Railway.....	73, 853, 188	.....
Total.....	106, 048, 134	228, 105, 405

CENTRAL RAILWAY.

The distance from Valparaiso to Santiago by the Central (State) Railway is approximately 125 miles. The gauge of the line is 5 feet 6 inches and the highest station, Las Chilcas, 2,051 feet. Trains carrying American parlor cars make the run in four hours. South from Santiago the railway follows the rich Central Valley, the altitude of this section varying from 100 to 1,700 feet. Fast express trains are maintained between Santiago, Talca, Concepcion, and Talcahuano, while through trains run to Valdivia and Puerto Montt. All this section of the railways does a large freight and passenger business. There are a number of important branches on the line, including (1) a line from Santiago to Port Antonio, which will greatly increase in value following the completion of the port works at the latter place; (2) the Los Andes branch, which connects with the Chilean Transandine Railway, a portion of the through route to Buenos Aires; (3) the Calera to Cabilda branch, which joins the terminus of the Longitudinal (State) line at the latter place; also branches to Talcahuano, Constitucion, Carahue, Valdivia, etc.

LONGITUDINAL RAILWAY.

The Longitudinal Railway, which operates or is constructing the State lines northward from Cabilda, is, unlike the Central Railway, of meter gauge. This railway, which is eventually to be carried northward as far as Arica, was constructed primarily for strategic reasons and, secondarily, to develop certain important sections of country and connect various cities and towns in the interior. As it stands to-day the Longitudinal Railway does not handle a very extensive traffic, particularly in its more northerly sections. A weekly train service is maintained between Antofagasta (Antofagasta & Bolivia Railway to Aguas Blancas) and Santiago. Two changes of cars are necessary, and the running time is about three and one-half days. The numerous steamers plying along the coast are very serious competitors for through traffic, and the Longitudinal line is very badly in need of additional equipment. The "cabotaje" trade or coastal commerce of Chile during 1915 amounted to 275,011,704 paper pesos.

As of December 31, 1915, the Government of Chile had guaranteed £7,081,750 bonds issued to construct the Longitudinal lines. These were divided as follows: North Longitudinal Railway, £3,055,750; South Longitudinal Railway, £4,026,000. The northern section of the line was constructed by the Chilean Northern Railway for the Government, the bonds being issued and publicly offered for subscription in London, with, as stated, the interest (5 per cent) and sinking fund guaranteed by the Chilean Government. The January, 1918, price for the bonds was 86. The North Longitudinal Railway (Chilean Northern Railway) operates that section of the Longitudinal line located north of Copiapo, while the southerly section, Copiapo to Cabildo, is operated by the South Longitudinal Railway.

The £4,026,000 South Longitudinal bonds were issued by the Government in three series, dated 1910, 1913, and 1914. Bonds outstanding under these three series amount to £1,073,088, £1,099,945, and £1,634,175, respectively, and the average market price for the loan

in London January, 1918, was 87-90. The bonds under series "B" issued in 1913 by J. Henry Schroeder & Co., of London, were publicly offered at 96. They bear interest at 5 per cent per annum and are retireable by a sinking fund, cumulative, of 2 per cent per annum.

On the southern section of the railway some very heavy grades are encountered, necessitating the use of the Abt rack system. Approximately 28 miles of this rack system are in use, the maximum gradient being 6 per cent on the rack line and 3 per cent on the ordinary section. There are rather long tunnels en route, and portions of the line are located in sections where railway construction was difficult. The Chilean Northern Railway section of the system extends northward from Copiapo to Pintados, the latter point being located southeast of Iquique. Here connections are afforded with the Nitrate Railways to Iquique and Pisagua. A line into Iquique, to be operated by the Longitudinal Railway, is under construction. Lines to connect the main stem of the railway with Antofagasta and Mejillones have been approved by the Government. These lines have been located and will probably be constructed in the immediate future. The extension of the main line to Arica is expected to be built northward from Zapiga, a station on the Nitrate Railways, which railway directly connects with the existing Longitudinal line at Pintados; this, however, will probably not be constructed in the immediate future, owing to lack of funds. This section of the line will be about 175 miles (278 kilometers) in length and will not produce a great amount of local traffic. Connections will be afforded with the Arica-La Paz Railway to Bolivia, and the Arica & Tacna Railway at Arica, which will mean that the nation will have direct railway connections between Tacna, which is practically on the border with Peru, on the north and Puerto Montt on the south.

FINANCES AND OPERATING RESULTS OF GOVERNMENT RAILWAYS.

The railways acquired by the Government and consolidated into the State system earned during the years 1855 to 1884 (in which latter year the consolidation was effected) 67,362,244 paper pesos gross and 27,117,230 pesos net, the ratio of operating expenses to gross earnings being approximately 60 per cent. In 1884, the first year of the State Railways, gross receipts totaled 6,000,000 paper pesos and net receipts 2,858,757 pesos. Slightly less than 600 miles of line were operated. During the 10-year period 1885 to 1894, a profit was consistently shown, the net receipts during this period exceeding 16,600,000 paper pesos. In 1885, for the first time in the history of the State Railways, a deficit (455,255 paper pesos) resulted. The mileage at that time was about 820. In 1896 there was a deficit of 164,711 paper pesos. Gross earnings for that year totaled 13,126,273 paper pesos. During the period 1897 to 1906 expenses were, on the average, about equal to revenues. In the latter year approximately 1,543 miles of line were operated, and gross receipts had reached the total of 24,800,000 paper pesos. In 1907 a deficit of 20,506,407 paper pesos resulted, and during the years 1908 to 1913 the deficits averaged between 10,000,000 and 21,000,000 paper pesos. Recently conditions have improved considerably, and it is stated that profits have been earned for the year 1916 to the amount of 8,000,000 paper pesos. Further data concerning the operating results of the various State lines will be furnished in a later paragraph.

In addition to the Central Railway and the North and South Longitudinal Railways, the State operates several lines, among them the Coquimbo, Copiapo, Huasco, Chanaral, and Arica-La Paz Railways.

CALDERA-COPIAPO LINE.

The Caldera to Copiapo line, the oldest railway in Chile, runs from the port of Caldera, 47 miles south of Chanaral, to Copiapo and San Antonio (about 100 miles), with about 75 miles of branches. The Longitudinal Railway is joined at Toledo. An extension of this line through the Andes to Argentina has been discussed for half a century or more. Formerly this railway was quite profitable, but during recent years operating expenses have shown a steady advance. Copper is the principal commodity handled, this being shipped from Caldera. The port is a good one, being fairly well sheltered, and the town handles a considerable amount of business. Copiapo is likewise an important, up-to-date city. The gas works located there were established by William Wheelwright, the American pioneer of railway development in South America.

COQUIMBO RAILWAY.

The Coquimbo Railway was acquired by the Government in sections. The portion of the railway from Trapiche to Tongoi was constructed by the North American Syndicate and cost £203,371. In 1899 a mortgage covering this property was foreclosed and in 1901 the Government acquired the line for £19,250, the amount of the mortgage. In 1896 the Coquimbo Railway proper was acquired from an English company for £245,000, and £20,000 additional was expended to acquire other mileage. The Government issued £265,000 $4\frac{1}{2}$ per cent bonds to provide funds for the cost of the undertaking, and such of these as remain outstanding are included in the indebtedness of the Republic. A large portion of this railway was originally of 5-foot 6-inch gauge; this, however, has been changed to meter gauge, partly by means of a third rail. The section of the railway to Rivadavia was purchased in 1895 for £200,000. A part of the mileage of the Coquimbo Railway is now included in the Longitudinal line. Coquimbo, the main port of this railway, is situated about 200 miles north of Valparaiso. It has nearly 25,000 inhabitants and is of considerable importance. The iron mines owned by the Bethlehem Steel Corporation are located no great distance from the city. Serena, an important town on this line, has a population of more than 20,000. Although within a mile of the sea, it is not a port; it is, however, capital of the Province of Coquimbo.

HUASCO RAILWAY.

The Huasco Railway, a short line, links the port of Huasco with Vollenar, the junction with the Longitudinal Railway. This railway is about 31 miles in length and is of meter gauge. Huasco, the port, is 165 miles south of Caldera, and is located on a bay that has shelter from the south and west. Minerals, hay, hides, and live stock are the chief exports, a large coastal trade being handled. Vollenar, the eastern terminal and junction, is located in an irrigated valley in which large amounts of fruit are raised. The Huasco Railway's operations annually result in a small profit.

ARICA-LA PAZ RAILWAY.

The Arica & La Paz Railway, which extends from the Chilean port of Arica over the Andes to La Paz, Bolivia, was the result of a treaty signed by Chile and Bolivia, which stipulated that Chile should construct the road, the Bolivian section to be acquired by the latter Government 14 years after the line had been opened for traffic. Thus Bolivia will acquire its portion of the line in the year 1926.

Of the 248 miles of line between Arica and La Paz, 129 miles are located in Chile. The entire line cost more than \$15,000,000 to construct and is by far the shortest of the three lines between La Paz and the Pacific Ocean. The line strikes off in a northeasterly direction from Arica, paralleling the Arica & Tacna Railway (which see) for a few miles, and soon begins its climb, through a barren, waterless waste, toward the top of the Andes. So rugged is the country traversed that the engineers when surveying the line were frequently compelled to blast a trail out of the solid rock in order to advance up the mountain side. The temperature would sometimes register below zero, Fahrenheit, in the early morning hours and would advance to 100° at noon. Engineering difficulties were encountered on every side. Six tunnels had to be bored and upward of 5,500,000 cubic yards of earthworks used. Along one section of the line the rise is sufficiently great to compel the use of 28 miles of rack rail, the longest continuous stretch of the rack system in the world. The railway crosses the divide at an altitude of approximately 14,000 feet, the highest point being located near Laguna Blanca, Chile.

The railway maintains a semiweekly passenger-train service between Arica and La Paz. The system is, however, almost completely demoralized owing to the insufficient equipment. There are not more than two locomotives in service capable of handling trains over the rack section. Port facilities at Arica are at present inadequate. The Corocoro mines in Bolivia have been unable to find means to transport their ore, and international freight service has been almost suspended. Forty days is allowed by the Chilean Government for the delivery to Bolivia without customs duties of freight shipped from foreign countries into Bolivia. This period frequently elapses before this freight can be handled and innumerable difficulties result. The railway is starving in the midst of plenty, and the Chilean Government, realizing this fact, is taking steps for the relief of the property. The line may possibly be electrified; it will, at least, be completely rehabilitated.

EARNINGS AND EXPENDITURES OF GOVERNMENT LINES.

As stated in a previous paragraph, the net earnings of the Government railways have shown improvement during the past two or three years. A comparison of gross earnings and expenditures during the period from 1913 to 1916, inclusive, is here shown:

Years	Gross earnings.	Expenditures.
	<i>Paper pesos.</i>	<i>Paper pesos.</i>
1913.....	67,989,348	80,211,299
1914.....	60,234,714	75,321,188
1915.....	73,720,401	63,721,848
1916.....	74,125,187	66,232,690

For the period January 1 to March 31, 1917, gross earnings totaled 19,784,813 paper pesos as compared with operating expenses to the amount of 14,804,664 pesos.

RAILWAY STATISTICS.

Statistics follow for the year 1913 of the capital employed, length, amount of equipment and traffic of the various railways of Chile, State and privately owned. The statistics are for a year during which operations of lines other than the Longitudinal and Arica-La Paz were carried on under normal conditions. The Longitudinal lines were not fully completed and the Arica-La Paz Railway had just been placed in operation, so their figures in this table can not be taken as an indication of earning capacity:

Railways.	Capital.	Earnings.	Expenses.	Equipment in service.			Passengers carried.	Freight carried.
				Locomotives.	Passenger cars.	Freight cars.		
<i>Arica-La Paz.....</i>	<i>Gold pesos.</i> 44,555,000	<i>Gold pesos.</i> 345,285	<i>Gold pesos.</i> 1,053,855	13	14	128	9,825	<i>Tons.</i> 18,594
Longitudinal.....	94,423,333	663,187	1,800,000	75	105	742	57,000	60,500
Northern Lines (Isolated) ^a	10,837,891	1,899,628	2,249,125	81	73	1,004	586,399	492,373
Central (State).....	258,383,484	37,034,052	42,475,128	582	540	6,304	12,291,154	4,795,880
Line Chillan to Pinto, etc.	805,280	64,000	73,000	2	6	28	80,204	10,838
Chiloe Island Railway System.....	2,176,164	13,504	54,385	5	2	1	1,130	1,608
Privately operated railways.....	252,733,128	38,812,037	22,232,630	690	246	9,791	1,896,312	15,230,783
Total.....	663,914,280	78,831,783	70,039,123	1,453	986	18,001	14,926,424	20,610,676

^a Coquimbo Railway, Huasco Railway, etc

A total of 31,323 persons were in the service of the railways of Chile on December 31, 1913. Of these, 25,323 were employed on the Government lines.

The Government's line on the island of Chiloe is of 0.60-meter gauge and extends from Ancud, the northerly port of the island, to Castro (60 miles). The island is richly timbered and fertile. Manufactures have developed to some extent. There are approximately 67 industrial establishments, including two breweries, three tanneries, seven sawmills, and three other mills. Ancud has a population of 3,546 and is in direct steamer communication with Puerto Montt on the mainland. Small coastal steamers also make the port.

ARICA & TACNA RAILWAY.

Practically all of the privately owned lines in Chile are under British control and management, and nearly all of them have been more or less successful. The most northerly of these lines is the Arica & Tacna Railway, extending from Arica, the port, to Tacna (population 11,759), capital of the Province of Tacna. This railway (British) is about 40 miles in length, was opened in 1875 under a charter given by the Republic of Peru, and cost to construct about \$2,200,000 United States currency. The authorized capital is

£500,000, of which £450,000 stock, par £20, is outstanding. Nominal dividends (1½ per cent each in 1916 and 1917) are regularly paid, the stock selling (January, 1918) at approximately £3 and £4. It was originally expected that this line would sooner or later be extended to La Paz. The construction of the Arica-La Paz Railway has, however, put an end to these anticipations. The Province has about 45,000 inhabitants, 111 industrial establishments, and 521 mines.

NITRATE RAILWAYS CO.

In the Province of Tarapaca, to the south of Tacna, is located the important system operated by the Nitrate Railways Co. (British), which connects extensive nitrate fields with the ports of Iquique and Pisagua. The line was opened in 1869 as a small local line, but has since been extended, the total mileage December 31, 1917, being 390. The gauge is 4 feet 8½ inches. A total of 73 locomotives, 53 passenger-train cars, and 1,794 freight cars were in service December 31, 1915. During the year 1915, 279,054 passengers were carried and 12,839,370 quintals of freight, the latter figure comparing with 18,158,312 quintals in 1914 and 24,023,490 quintals in 1913. In 1916 and 1917 traffic was larger.

There follows a table indicating the earnings and profits of the railway for the calendar years 1913 to 1917, inclusive. Figures for 1917 are partly estimated and, although the dividend rate is stated below to be 7 per cent, no final action had been taken up to January, 1918, as to the amount to be paid to shareholders from 1917 earnings:

Items.	1913	1914	1915	1916	1917 ^a
Rate of exchange.....	9½d.	9½d.	8½d.	9½d.	.....
Gross earnings.....	£724,049	£559,569	£394,787	£704,026	£300,000
Expenses.....	351,220	296,331	195,431	351,739	428,000
Ratio.....	(48.50)	(52.96)	(49.50)	(49.96)	(53.50)
Net earnings.....	372,829	263,238	199,356	352,287	372,000
Miscellaneous income.....	4,914	2,807	4,928	9,807	10,000
Net income.....	377,743	266,045	204,284	362,094	382,000
5 per cent mortgage bonds:					
Interest.....	28,442	17,165	13,347	9,101	4,000
Sinking fund.....	207,523	159,982	58,790	121,615	79,000
Miscellaneous charges.....	12,319	22,672	40,772	43,201	49,000
Total charges.....	248,284	199,819	112,909	174,117	132,000
Net profit.....	129,459	66,226	91,375	187,977	250,000
Expenditure on buildings, sidings, etc.....	11,478	8,664	1,776	4,749	5,000
Profit for ordinary.....	117,981	57,562	89,599	183,228	245,000
Ordinary dividend.....	124,200	41,400	82,800	115,920	115,000
Rate, per cent.....	(7½)	(2½)	(5)	(7)	(7)
Balance.....	Dr. 6,219	Cr. 16,162	Cr. 6,799	Cr. 67,308	130,000
Renewal of rolling stock account.....	30,000	.....	.....	30,000	.....
Balance.....	Dr. 36,219	Cr. 16,162	Cr. 6,799	Cr. 37,308	.....
Brought forward.....	79,998	43,759	59,921	66,720	104,000
Carried forward.....	43,759	59,921	66,720	104,028	.....

^a Estimated.

^b Equal to a dividend of over 15 per cent on the shares.

The quotations for the securities of the company (London Stock Exchange) are indicated as follows:

Securities.	Amount outstanding.	Par value.	High price since 1911.	Price January, 1918.
Ordinary shares.....	£1,485,340	£10	15½	13½
Preferred converted ordinary.....	170,660	10	12½	9½
Deferred converted ordinary.....	170,660	10	5	5

The dividend annually paid by the company is on the entire stock capitalization, the ordinary shares receiving their full proportion of the dividend declared, the preferred converted up to 7 per cent, and the deferred converted the difference between the 7 per cent dividend paid on the preferred converted and the dividend paid on the ordinary, in the event that the ordinary dividend exceeds 7 per cent. No dividend was paid on the deferred converted shares in 1915, 1916, or 1917. In 1914, one-half per cent was paid. The ordinary shares are convertible into the two other classes of stock in the proportion of 100 per cent of each; likewise, a holder of one share of each class of converted stock may exchange it for one share of ordinary stock.

Formerly this company had outstanding an issue of 5 per cent first-mortgage bonds. These were originally offered in 1888 to the amount of £2,000,000, but have been wholly retired (last bonds paid off in 1917) through the operations of a sinking fund.

The Nitrate Railways Co. originally obtained its charter from the Peruvian Government. The concessions of the company expire in 1936, 1957, and 1974, when the various lines revert to the Chilean Government, the territory served being now wholly under the latter's control. The company has accumulated considerable reserves and is in excellent financial condition. It is one of the two great nitrate-carrying lines of Chile, and although its traffic is mostly made up of that single product, future prospects may be said to be very good.

The company's shares carry voting power as follows: Ordinary shares, one vote; preferred converted, one-third vote; and deferred converted, two-thirds vote per share.

ANGLO-CHILEAN NITRATE & RAILWAY CO.—AGUA SANTA RAILWAY.

In this district there are two other railways of considerable importance—the Anglo-Chilean Nitrate & Railway Co.'s line and the Agua Santa Railway. The former railway carries nitrate to the port of Tocopilla. This property usually pays 25 per cent and upward per annum (30 per cent in 1917) on the £550,000 ordinary and £350,000 preference shares and 4½ per cent on the £347,300 mortgage bonds. The Agua Santa line, owned by the Agua Santa Nitrate & Railway Co., is largely a local enterprise, although there is some British capital interested. Large dividends are paid.

ANTOFAGASTA & BOLIVIA RAILWAY.

The Antofagasta (Chile) & Bolivia Railway, a large and important British-owned line, terminates at the ports of Antofagasta

and Mejillones. This is the largest and most important privately owned railway in Chile, and its career has been a most successful one. The railway (exclusive of the Bolivia Railway, which is leased) operates 820 miles of main track, 518 miles of which are located in Chile. The capitalization of this international enterprise, as of December 31, 1917, was £10,100,000, of which £6,000,000 was stock and £4,100,000 debentures. Including the Bolivia Railway (leased, as stated) and the Aguas Blancas Railway, the stock of which is owned, approximately 1,250 miles of railway are under the company's control. The Chilean section is at present of 2-foot 6-inch gauge, despite which fact trains are operated at a good speed and with comfort to travelers. A double weekly train service is maintained between Antofagasta and La Paz, the running time being approximately $1\frac{3}{4}$ days. Additional local trains are also run. The railway's climb begins almost as soon as it leaves the Pacific, the first 20 miles averaging nearly 100 feet rise to the mile. The railway crosses the Longitudinal System at kilometer 96, and some traffic is interchanged. After leaving this crossing the line enters the nitrate belt, through which it extends for upward of 30 miles. This is the principal source of traffic to the company.

At Calama, 148 miles from Antofagasta, the copper belt is reached. Not far beyond this point, on a short branch, are the Chuquicamata copper mines owned by the Chile Copper Co., an American corporation. This company holds a franchise to build a railway to the port of Mejillones, but, because of the satisfactory traffic arrangements made with the Antofagasta & Bolivia Railway, this railway will probably not be built at present. The Antofagasta & Bolivia Railway, after leaving Calama, continues to climb into rugged country. At Conchi—kilometer 300, altitude 10,000 feet—is the Loa Viaduct, 336 feet high and supported by six girder spans of 80 feet each in the clear supported on steel trestle towers. At San Pedro, a short distance farther on, are situated the waterworks owned by the railway company, which supplies the city of Antofagasta and the nitrate fields with water. This system cost upward of £1,250,000 to complete. The capacity of the water supply is estimated at 6,000 tons daily. At kilometer 362 the altitude is 13,000 feet, the highest point on the main line. From this point it drops to Cebollar, altitude 12,200 feet (kilometer 389), which is the station for the Ascotan lake of borax, worked by the Borax Consolidated Co. The lake is 24 miles in length, and the borax supply, which may be considered practically inexhaustible, is the largest in the world.

Ollague, the frontier town for Chile, is located near Mt. Ollague, a volcano, exceeding 20,000 feet in height. Some sulphur is mined at the Buena Ventura mine near here, bringing a fair amount of traffic to the railway, and from the station a branch runs to the Collahuasi copper district 60 miles away. This branch climbs to the altitude of 15,809 feet, the second highest point reached by the line (the Potosi branch in Bolivia is 15,814 feet high), and will probably develop a considerable traffic from these rich mines. The frontier line is 275 miles from Antofagasta, and from that point the railway proceeds to Uyuni, Oruro, and La Paz, with branches to Potosi and Cochabamba.

Owing to the fact that the 1916 statistics of the company were not available, the figures for 1915 are here presented. The year's busi-

ness was far below normal, not comparing favorably with earnings for either 1913 or 1916. Gross results since 1912 have been as follows:

Years.	Miles operated.	Gross results.	Years.	Miles operated.	Gross results.
1912.....	799	£1,663,935	1915.....	820	£1,322,056
1913.....	795	1,811,775	1916.....	838	1,844,235
1914.....	820	1,541,995	1917.....	838	2,236,925

The Chilean section (518 miles) earned in 1915 £1,036,025, as compared with £1,149,568 in 1914. These earnings were far below the results for 1916 and 1917. Net earnings amounted to £492,096 in 1915 and £486,102 in 1914. A total of 367,280 passengers were carried in Chile during 1915, as compared with 447,389 in 1914. The freight tonnage for the section in 1915 amounted to 1,439,990, as compared with 1,457,366 in 1914. The nitrate tonnage was 814,955, of which 459,838 tons went to Antofagasta and 372,129 tons to Mejillones. The copper-ore tonnage was 51,497, an increase of 3,391 tons over 1914. The Chile Copper Co.'s production is increasing, and the earnings from the copper tonnage will probably be much greater in future years. The remainder of the traffic of the railway is made up mostly of ores, etc., from Bolivia and of petroleum, coal, and imported merchandise. The earnings from the waterworks for 1915 were £101,475 gross (£111,068 in 1914) and £79,731 net.

The dividend record of the company, over a period of 10 years, has been as follows:

Securities.	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	10-year average.
	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
5 per cent cumulative preference..	5	5	5	5	5	5	5	5	5	5	5
Preferred ordinary a.....			5	5	5	6	5	5	5	b 7	5.6
Deferred ordinary.....	7½	7½	7½	8	8½	11	8	8	8	b 12	8.6

a Entitled to 5 per cent dividends in preference to the deferred ordinary stock and ranking equal with the latter class in all dividend payments in excess of 10 per cent per annum.

b Includes 2 per cent in deferred ordinary stock paid June, 1915.

During 1916 this railway effected a short-term 6 per cent loan in the United States. These notes were paid off at maturity, July 1, 1918. Its securities may be said to be sound, stable investments. Its shares sell at a high price, and the company's dividend record is an excellent one.

AGUAS BLANCAS RAILWAY.

The Aguas Blancas Railway, which, as has been mentioned, is controlled by the Antofagasta & Bolivia Railway, runs from the port of Calata Coloso, 6 miles south of Antofagasta, to various nitrate properties at or near Yungay, Aguas Blancas, Avanzada, Castilla, etc. The railway parallels the Antofagasta & Bolivia Railway for a short distance and then strikes off in a more southerly direction. The line has been moderately successful. Its £900,000 4½ per cent bonds are listed on the London Stock Exchange and bear the guaranty of the Antofagasta & Bolivia Railway.

TALTAL RAILWAY.

The Taltal Railway, an important line, is the next privately owned system to the south of Antofagasta. The corporation is English. The railway extends from Taltal, a major port located on a bay about 110 miles to the south of Morena Bay (Antofagasta), in an easterly direction to Canchas (25 miles); from this point a branch runs northward to Puertazuela and Santa Luisa, where are located important nitrate oficinas (length of branch 26 miles). From Canchas the railway runs in a northeasterly direction, crossing the Longitudinal Railway near the Alianza nitrate oficina and continuing to Aguado and Cochinal, approximately 95 miles from Taltal. An important branch extends from Ovalo to Salintas, the latter an important nitrate center. There are also several additional short branches, the total length of the railway system being 184 miles. The maximum gradient of the line is 4.8 per cent and the average gradient about 2 per cent. Nitrate is the principal source of traffic, although a fair passenger and general freight business is handled. Daily passenger service is maintained over most of the line. Most of the locomotives in service burn oil as fuel.

The capitalization of the Taltal Railway consists of 900,000 shares, par £5, and £229,000 first-charge $4\frac{1}{2}$ per cent debentures, these securities being listed on the London Stock Exchange (see Appendix). Dividends during recent years have averaged from 6 to 9 per cent per annum.

The port of Taltal, as of December 31, 1916, had an estimated population of 16,277. Facilities at the port are fairly good and the town is a modern one, lighted by electricity and containing a number of important business houses. The Province of Taltal is said to contain considerable undeveloped areas of nitrate lands, gold, silver, and copper ores, and other mineral deposits. Steamers of the Pacific Steam Navigation Co., the Chilean Line, etc., make the port with fair regularity.

MINERAL RAILWAY FROM ALGARROBO MINES TO CALDERA.

There is a short mineral railway owned by the Comunidad Minera de la Viuda, which runs from the Algarrobo mines to the port of Caldera (see description of Copiapo Railway, under Government lines). This line is slightly more than 25 miles in length and is not important as a common carrier. The general direction followed by the line is northeasterly.

CARRIZAL & CERRO BLANCO RAILWAY.

Another important privately owned railway is the Carrizal & Cerro Blanco line. This railway extends from Carrizal Bajo, a minor port, located 73 miles south of Caldera and 92 miles north of Huasco, inland to Yerba Buena (60 miles), with several branches to important mining centers. Most of the company's business is derived from mineral traffic, although there is sufficient passenger traffic to warrant daily service. The total mileage is about 125.

The company has outstanding 1,500,000 paper pesos capital stock of a par value of 500 paper pesos, of which 2,619 shares were held in England at latest accounts and the remainder, 381 shares, in

Chile. Receipts and expenditures during recent years have been as follows:

Periods.	Receipts.	Expenditures.	Net earnings.
	<i>Paper pesos.</i>	<i>Paper pesos.</i>	<i>Paper pesos.</i>
July-December, 1913.....	216,909	146,453	70,456
January-June, 1914.....	193,006	141,945	51,061
July-December, 1914.....	182,702	124,339	58,363
January-June, 1915.....	131,661	137,882	-6,221

On various occasions this company has paid moderate dividends to its stockholders. The line is an old one, about 23 miles having been constructed prior to 1864.

CHILEAN TRANSANDINE RAILWAY.

Best known and least successful among the privately operated lines in the Republic is the Chilean Transandine Railway, forming a portion of the only transcontinental line south of the Isthmus of Panama. The Chilean Transandine Railway starts at Los Andes, the western terminus of a branch of the Central of Chile (State) Railway, forming a 43-mile link in the 886-mile system from ocean to ocean.

Los Andes, the terminal, is 88 miles from Valparaiso, and here the passengers and freight must change cars owing to the fact that the State line is of 5-foot 6-inch gauge and the Transandine Railway of meter gauge. The altitude here is 2,723 feet. There is a 43-mile trip before the line enters the heart of the mountains to emerge on the Argentine slope. It is a wild and wonderful country through which this railway has been constructed. Cliffs, crags, and deep gorges abound, while there are 25 tunnels and 118 bridges, all across one stream or its tributaries. Twenty miles of rack rail are used, while snow and avalanche sheds are frequently necessary, inasmuch as the railway has to contend with mighty storms that occur with considerable frequency during the winter months, blockades often lasting several months. During the winter of 1916 the line was kept open continuously for the first time in the railway's history. The maximum grade of the line is 8 per cent.

The cost of the Chilean Transandine Railway has far exceeded expectations, property and equipment being carried on the books as of June 30, 1915 (figures published June, 1916) at £3,001,670. The company had outstanding on that date £1,400,000 preference shares, £100,000 ordinary shares, and £1,485,000 5 per cent debentures guaranteed for 20 years from 1903 by the Chilean Government. Thus the capitalization of this line amounts to upward of \$317,000 United States currency per mile (exchange figured at par). Earnings of the line for 1914-15 totaled £23,607 (approximately \$2,000 per mile), and there was an operating deficit of £29,066. Interest requirements amounted to £75,000, which sum was advanced by the Government. Freight earnings are very small, most of the business being derived from the operation of the semiweekly international passenger train. Further references to the railway and the 2-mile international tunnel are made in the chapter on Argentina (see p. 53).

RAILWAY OPERATED BY ARAUCO CO.

The only other important privately owned railway in Chile is that operated by the Arauco Co., an English concern operating important coal properties located to the south of Concepcion. The line handles about 250,000 tons of coal annually and also does a general freight and passenger business, which averages £15,000 to £20,000 annually. About 62 miles of main line and branches and additional mileage of coal-mining spurs are operated. The railway crosses the River Bio Bio via a bridge approximately $1\frac{1}{4}$ miles in length, the longest bridge in South America. Four daily passenger trains are operated daily in each direction, running between Concepcion, Coronel, Lota, and points beyond.

The capitalization of the company consists of £478,000 stock, on which 8 per cent and upward is paid each year; also £481,000 debentures and £75,000 5 per cent income bonds. The shares generally sell at a fair premium on the London Stock Exchange and are in favor with investors.

SMALL PRIVATELY OWNED RAILWAYS—TRANSANDINE PROJECTS.

There are no other important privately owned railways in Chile. From Rancagua, 87 kilometers (54 miles) south of Santiago, the Braden Copper Co. has constructed a line some 70 kilometers (44 miles) in length to its mines. From Collilelfu, east of Puerto Montt, the San Martin Railway, a proposed transandine line, runs to Huidif, 30 kilometers (18.6 miles). From the latter point this company operates a road transportation service to Rinahue on Lake Rinahue, 10 kilometers (6.2 miles), from which landing a steamer runs to Chosueno, 31 kilometers (19.3 miles). The remainder of the 161-kilometer (100-mile) trip to San Martin is made 43 kilometers (26.7 miles) by road and 49 kilometers (30.4 miles) by steamer. San Martin is on Lake Lacar, Argentina. All of this service, which is maintained weekly, is operated by the railway company. The company originally intended, and still hopes, to continue its line through to connect with the Argentine State Railways running to the Atlantic Ocean. A considerable amount of rough country must be traversed before railheads are connected.

There have been put forward no fewer than 15 transandine projects, the majority of these to be located south of the existing line. One of these would involve an extension of the Chilean Eastern Central Railway (which is only partly completed) from the port of Lebu through the coal fields to join the State Railway. The State line would be used from Los Sauces to Curacautin (73 miles) and an extension built through the Lonquimay Pass to join the Neuquen extension of the Buenos Aires Great Southern Railway. The cost of the line is estimated at \$15,000,000.

Among the small privately owned railways is the line running from Punta Arenas to the Loreta coal mines, worthy of note only because it is the most southerly railway in the world. It is of 2-foot 6-inch gauge.

SUMMARY OF RAILWAY SITUATION.

As will be seen from the foregoing account, Chile is excellently provided with railways. The important Central System, owned by the

State, is, of course, the largest of these lines. The Longitudinal Railway has been constructed ahead of its time and is largely important as a strategical system. With the acquisition of much-needed equipment traffic will increase, and the inflow of population that will probably come to Chile in the not distant future will materially help the line. Lack of cars in service and of certain needed improvements makes it impossible to compete successfully with the numerous coast-wise steamers that make the various ports, and therefore large deficits usually result.

Private railway ventures, other than the Chilean Transandine Railway, have returned very substantial profits on sums invested. Chile's railway situation may be said to be excellent. Its present mileage is large and will further increase during the next few years.

RAILWAY CAPITALIZATION AND QUOTATIONS FOR SECURITIES.

The following table indicates the capitalization, par value of shares, and quotations for securities of the most important privately operated railways in Chile:

Names of companies and classes of securities.	Amount outstanding.	Par value.	High price since 1911.	Price, January, 1918.
Antofagasta & Bolivia Railway:				
Preferred ordinary stock, 5 per cent	£2,000,000	£100	112	85
Deferred ordinary stock	2,000,000	100	174	133
5 per cent cumulative preference stock	2,000,000	100	110	80
4 per cent perpetual debenture stock	1,000,000	100	104	70
4½ per cent debenture stock, redeemable	1,000,000	100	109	81
5 per cent debenture stock, redeemable	1,500,000	100	115½	89
5 per cent Bolivia debenture stock, redeemable	600,300	100	113	85
Agua Blanca Railway:				
Stock	£10,000,000	(a)	(b)	(b)
4½ per cent debenture stock	£836,629	£100	106	81
Anglo-Chilean Nitrate & Railways:				
Ordinary shares (30 per cent, 1917)	550,000	5	20	19½
Preference shares (30 per cent, 1917)	350,000	5	20	19½
4½ per cent consolidated mortgage bonds	347,300	100	103	81
Arica & Tacna Railway:				
Ordinary shares	450,000	20	5½	3½
Arauco Co.:				
Ordinary shares (10 per cent, 1917)	477,800	10	12½	12
5 per cent irredeemable first mortgage debentures	298,164	100	107	90
6 per cent redeemable second debenture stock	177,223	100	105	98
5 per cent income debentures	75,000	100	95	78
Carriçal & Cerro Blanco Railway:				
Capital stock	£1,500,000	£100	(b)	(b)
Chilean Transandine Railway:				
Ordinary shares	£100,000	£100	(b)	(b)
Preference shares, 6 per cent cumulative	1,400,000	100	(b)	(b)
5 per cent debentures, "Series A"	278,100	100	101	59
5 per cent debentures, "Series B"	538,650	100	101	60
5 per cent debentures, "Series C"	668,250	100	101	59
Nitrate Railways:				
Ordinary shares	1,485,340	10	15½	13½
Preferred converted	170,660	10	12½	9½
Deferred converted	170,660	10	5	5
Taltal Railway:				
Ordinary shares (9 per cent, 1917)	900,000	5	9½	6
4½ per cent first charge debentures	185,100	100	103	94

a Quoted in Chilean paper currency; par value 100 pesos paper.

b Not quoted.

PUBLIC UTILITIES.

Public-utility developments in Chile have been steady and have attracted a large amount of foreign capital, particularly German and British. Practically all the cities and towns of importance are supplied with fresh water and are lighted by either electricity or

gas. There are 34 tramway lines in the Republic, 13 telephone companies, and various telegraph systems, operated by the State or privately. The 34 tramway lines operate 254 miles of line (409 kilometers) and represent an investment of 56,039,759 paper pesos. During the year 1914 a total of 106,470,230 first-class and 43,926,878 second-class passengers were carried. Gross earnings totaled 13,875,681 paper pesos and operating expenses 10,011,366 paper pesos; net earnings amounted to 3,864,315 paper pesos, equal to approximately 6.9 per cent on total investments. A total of 831 cars were in service.

The 13 telephone companies maintain 268 offices and employ 1,097 persons. The subscribers number 18,208, and the value of property owned amounts to 11,866,696 paper pesos. The British-owned Chile Telephone Co. is by far the largest competitor in this field.

As previously stated, considerable amounts of German capital have been invested in the public utilities of Chile. The *Compañía Alemana Transatlántica de Electricidad*, which owns the electric-lighting properties in Buenos Aires, controls the *Tranvías Eléctricos de Valparaíso*, operating the tramway lines in Valparaíso and Vina del Mar, through ownership of a large majority of the \$5,000,000 (United States currency) stock in the company. The former company also owns a very large interest in the Santiago Electric Light & Tramway Co. This latter company, with a capitalization of £650,000 preference shares and £404,700 ordinary shares, may be said to be an English-German corporation.

Data as to earnings, capitalization, etc., of various public-utility enterprises in Chile will be found in the Appendix (see p. 512). Among the prominent companies in the field may be mentioned the Tarapaca Waterworks Co., an English concern, operating the water system of the city of Iquique; the Valparaíso Drainage Co. (Ltd.), holding a concession to lay and maintain the sewerage system of the city of Valparaíso (a British company); the Chile Telephone Co.; the Cia. General de Electricidad Industrial, with the lighting and power privileges of the small cities of Rancagua, Temuco, Chillan, Curico, Lo Bravo, and San Fernando, located in south-central Chile; the Santiago Gas Co., a local concern; the San Bernardo Electric Tramways, suburban to Santiago; the Valparaíso Gas Co. (local); the Commercial Telegraph Co., etc. The gas companies operating in Valparaíso and Santiago have been very successful and have paid substantial dividends. The shares of both of these companies are quoted in the local markets at upward of par.

In the northern zone of Chile public-utility development has made fair headway. Most of the towns and cities have fairly good water, although this usually has to be brought from a considerable distance, in most instances from high in the Andes. The gas works in Arica represent an investment of approximately 245,000 paper pesos; the port is lighted by electricity. Tacna is lighted by electricity. Pisagua, the next place of importance to the southward, is lighted by paraffin or acetylene. Iquique, which has reached considerable size and importance, is well lighted by electricity and has a good tramway system. As previously mentioned, the Tarapaca Waterworks Co.¹

¹ This company has a capitalization of £240,000 shares, par £6. Dividends have been at the rate of 8 per cent per annum for a number of years. The net profits for 1917 were £45,861.

furnishes the water supply; this water is brought from Pica, in the mountains, a distance of 88 miles. Mejillones has rather inadequate lighting facilities, while Antofagasta has its local electricity plant, controlled by a company headed by the firm of Mitrovitch Bros., an important local concern of Russian origin. The drinking-water supply is furnished by the Antofagasta & Bolivia Railway, which has laid a pipe line from its collecting stations (blasted out of solid rock), located at San Pedro Station, 195 miles from Antofagasta. This water-supply reservoir, pipe line, etc., cost more than £1,250,000 and has paid a substantial return. A large portion of the nitrate district depends on this company for its water supply. Some of the springs are located at an altitude of 14,500 feet. Formerly Antofagasta had a street-car line, on which cars were drawn by horses. Several years ago, when the streets of the city were paved, this line was abandoned and the tracks torn up. At present the city, which has a population of more than 75,000, depends on a service of automobile omnibuses. As the area of the city is not great, this service is probably sufficient for its immediate needs. The construction of an electric traction line has been agitated and its possibilities looked into by various interests, including one American public-utility concern, but thus far nothing has been accomplished.

Taltal, the second town in importance in the Province of Antofagasta, has electric lights furnished by a local company. The power station is owned by the Taltal Railway, a British company. Water has to be brought from a point in the mountains, a considerable distance away.

Total investments in electric light and power properties in the Province of Antofagasta amount to 1,782,000 paper pesos.

Atacama, the next Province to the southward, contains no cities of any size other than Copiapo (population 11,056), located 50 miles inland from the port of Caldera. This former town is lighted by gas, the company furnishing the light having originally been formed by William Wheelwright, founder of the Pacific Steam Navigation Co. and builder of the first railway in Chile.

Coquimbo, the next Province to the southward, contains two cities of importance, Coquimbo (population 17,622) and Serena (population 16,149), and the town of Ovalle (population 8,311). Coquimbo is lighted by gas, and Serena has both gas and electricity. The electric company operating in Serena has an invested capital of 215,000 paper pesos.

Aconcagua, located to the eastward of Valparaiso, contains the growing cities of Los Andes and San Felipe, as well as several towns of moderate importance. San Felipe has a street railway—the cars being drawn by horses—and a lighting system. Los Andes has electric lights, power being obtained from the Aconcagua River, flowing from the mountain heights. In Aconcagua Province a total sum of 434,000 paper pesos is invested in electric lighting (one company) and 88,000 paper pesos in the gas plant.

Mention has been made of the various public utilities in Valparaiso and Santiago. It is stated that 5,547,224 paper pesos is invested in the two gas plants in the city and Province of Valparaiso (mostly in the Gas Co. of Valparaiso) and 9,000,000 paper pesos in the Gas Co. of Santiago.

O'Higgins Province contains the city of Rancagua (population 15,830). The Compañía General de Electricidad Industrial, previously mentioned, furnishes light and power for Rancagua. The capitalization of this company is 1,500,000 paper pesos, of which 262,056 pesos is invested in the Province of O'Higgins. The same concern furnishes the lighting for the city of San Fernando (population 10,869), capital of the Province of Colchagua, and for Curico (population 22,452), capital of the Curico district.

In Talca Province, farther to the southward, there is one electric company with a capitalization of approximately 387,000 paper pesos and an important gas works and system representing an investment of 1,052,834 paper pesos. Talca, the only city of importance, has a population of 42,088.

Concepcion, which has attained considerable importance, has electric traction service, which connects the city with the port of Talcahuano, 9 miles distant. The city is lighted by gas and electricity.

Public-utility enterprises also exist in several of the larger cities and towns to the southward, including Valdivia, Chillan, Temuco, and Punta Arenas. In the last-named city the Magallanes Telephone Co. has a capital of £60,000.

Undoubtedly there are opportunities in Chile for further public-utility development, particularly in modernizing some of the systems in certain of the small cities and towns and, in a few instances, in the construction of sewerage systems and filtration plants. Likewise there are prospects for interests well provided with capital to take over and consolidate various undertakings now in operation, forming holding companies similar to those operating in the United States. During the past two or three years certain banking and public-utility interests in the United States have partially investigated the field, although thus far practically nothing has been done. To date, other than the loan made by the Guaranty Trust Co. of New York to the Valparaiso Water Board, which is in reality a municipal enterprise, run by city and nation, no capital from the United States has gone into Chilean public utilities. It is a noteworthy fact that the shares of practically all the public-utility concerns listed on the local stock exchanges sell at a considerable premium.

MINERALS AND METALS.

Mining is to-day and will for many years continue to be the principal source of wealth in Chile. Almost every known variety of mineral exists in the Republic, and many of these are mined on a large scale. Chilean mining laws are liberal and all nationalities have the right to acquire claims. The general rights include the use of as much land as is necessary for the exploitation and survey of the mine, the erection of all necessary buildings, the laying out of roads and trails, the use of necessary water, timberland, and pasture. A small sum is payable to the Government as rental for each claim. As of January, 1916, the mining claims in force were as shown on the succeeding page:

Minerals.	Number of claims.	Minerals.	Number of claims.	Minerals.	Number of claims.
Gold.....	2,584	Iron.....	1,394	Coal.....	129
Copper.....	12,049	Manganese.....	109	Salt (ordinary).....	378
Silver.....	605	Borate.....	2,351	Lime.....	451
Gold and copper.....	706	Sulphur.....	605	Potassic salts (nitrates).....	1,398
Gold, silver, and copper.....	2,065	Petroleum.....	2,041		

The total number of claims in force in January, 1916, was 28,704, as compared with 28,541 in January, 1915.

The production of minerals, metals, nitrates, etc., in Chile during 1915 amounted to the following:

Minerals.	Quantity.	Value in gold pesos of 18d.	Minerals.	Quantity.	Value in gold pesos of 18d.
Gold.....grams..	1,335,524	813,485	Iodine.....kilos..	708,858	11,738,694
Silver.....do....	40,445,061	1,006,237	Borate.....metric tons..	14,869	2,081,660
Copper ore.....kilos..	52,340,959	44,287,340	Common salt.....do....	30,266	1,059,309
Iron ore.....metric tons..	147,100	2,942,000	Sulphur.....do....	9,769	1,172,280
Lead ore.....kilos..	44,270	1,596	Clay.....do....	14,425	144,250
Zinc ore.....do....	5,760	3,129	Lime.....do....	52,242	783,530
Molybdenum ore.....do....	2,044	5,110	Gypsum.....do....	4,700	141,000
Tungsten ore.....do....	8,560	76,500	Guano.....do....	11,944	477,760
Coal.....metric tons..	1,171,564	29,289,100	Miscellaneous.....do....	1,700	64,950
Nitrate.....do....	1,696,877	201,858,465			

Dividing the minerals into three general classes, the production and the amount exported during 1915 were as follows:

Minerals.	Production, in gold pesos of 18d.	Exportation, in gold pesos of 18d.
Metallic substances: Gold, silver, copper, iron ore, tungsten ore, etc.....	49,142,847	49,806,618
Fuels: Coal.....	29,289,100	4,624,050
Salts and nonmetallic substances: Nitrates, iodine, sulphur, salt, borates, lime, clay, guano, etc.....	219,514,448	246,674,881
Total.....	297,946,395	301,105,549

In 1917 the value of the mineral production in Chile was 491,308,714 gold pesos, of which 40 per cent was produced by Chilean companies and 60 per cent by foreign companies (27.8 per cent British, 12 per cent American, 9 per cent German, etc.).

The various branches of the mineral industry will be discussed in succeeding paragraphs. The mineral wealth of Chile has attracted large amounts of foreign capital, particularly capital from the United States and Great Britain. In the nitrate industry British and Chilean companies hold at least 90 per cent of the developed properties, the division being about equal, and the remainder is mostly held by German and North American companies. The United States is taking increased interest in the field, the Dupont Nitrate Co. having acquired various properties, on which extensive development work has been begun. Other American interests have recently been looking over important fields to the southeast of Antofagasta. American investments in copper mines are very large, particularly

those made by the Chile and Braden copper companies. The Bethlehem Steel Co. has acquired the most important iron properties in the Republic and American capitalists are looking into various other branches of mineral development.

NITRATES.

The nitrate industry in Chile showed results during the year 1916 such as were never before attained. The total production for the year was 63,323,770 Spanish quintals (of 101.41 pounds), equal to 2,905,627 metric tons, the monthly average being 5,276,926 quintals, or 242,136 tons. The year 1917 showed a still further increase (though a relatively small one), the production being approximately 65,100,000 quintals.

The production month by month during 1916 was as follows:

Months.	Spanish quintals (of 101.41 pounds).	Months.	Spanish quintals (of 101.41 pounds).	Months.	Spanish quintals (of 101.41 pounds).
January.....	5,641,671	May.....	3,353,913	September.....	4,726,102
February.....	5,291,841	June.....	5,163,700	October.....	5,242,701
March.....	5,457,414	July.....	5,312,776	November.....	5,082,805
April.....	5,337,592	August.....	5,396,981	December.....	5,326,823

The annual production since 1891 has been as follows:

Years.	Metric tons.	Years.	Metric tons.	Years.	Metric tons.
1891.....	771,915	1900.....	1,476,117	1909.....	2,085,929
1892.....	843,714	1901.....	1,239,470	1910.....	2,436,181
1893.....	972,618	1902.....	1,355,894	1911.....	2,491,129
1894.....	1,121,815	1903.....	1,467,667	1912.....	2,556,188
1895.....	1,302,459	1904.....	1,540,604	1913.....	2,739,381
1896.....	1,085,689	1905.....	1,733,799	1914.....	2,434,254
1897.....	1,166,774	1906.....	1,800,537	1915.....	1,696,877
1898.....	1,316,361	1907.....	1,824,146	1916.....	2,905,627
1899.....	1,398,171	1908.....	1,947,603		

The production of 1916 exceeded the 1913 production, which previously held the record, by 166,246 tons (3,657,412 quintals). The amount of nitrate exported during 1916 was 64,899,115 quintals, 1,575,345 quintals in excess of the production.

During the eight-year period 1907 to 1914 the world's consumption of nitrate increased from 1,738,680 tons to 2,708,968 tons. No authentic figures for a later date are obtainable, owing to the fact that the data from several of the warring nations of Europe can not be procured.

The nitrate industry of Chile, which during the year 1913 had reached unprecedented prosperity, was thrown into serious disorganization at the outbreak of the war. A number of oficinas were compelled to shut down and nearly all the companies in the field were compelled to reduce or suspend dividends. The return of business was almost as sudden as the crash that preceded the short-lived depression, and during 1916 most of the oficinas earned record sums. The rush of producers to reopen their plants, following the return

of the demand for the product, caused a widespread demand for labor, and this problem was solved with difficulty owing to the fact that thousands of workmen had left the barren districts and scattered throughout southern Chile. Mules, which had been sent by hundreds to southern pasture lands, had to be shipped north and many problems were encountered. Whether the present prosperity in the industry will continue after the war is problematical. However, there will certainly be a demand for the product to replenish the over-worked lands of Europe, following the close of the war, and this insures a considerable demand for a time, at least, although it is questionable whether the amount needed for creative purposes will equal that now used for destructive purposes.

Statistics follow showing the number of nitrate oficinas in existence, the number working, and the number of employees:

Years.	Oficinas in existence.	Oficinas working.	Number of workmen.
1913.....	169	127	53,161
1914.....	170	137	43,979
1915.....	171	116	45,506
1916.....	172	116	.....
1917.....	172	124	.....

A total of 192,362 tons of coal and 305,919 tons of petroleum were used as fuel during 1915. In 1913 the totals were 488,454 tons and 377,059 tons, respectively.

Of the 87 firms in the field in 1914, 51 were Chilean, 32 British, 3 German, and 1 American. A small number of the British concerns were partly financed by German interests. In the nitrate production for 1917 the Chilean companies accounted for 39.85 per cent, the British for 36.10 per cent, and the German for 12.24 per cent.

Shares and debentures of 21 of the nitrate companies under British control are actively quoted on the London Stock Exchange, their total capitalization amounting to nearly £9,000,000. These companies, during past years, have been generally successful, so that nitrate shares on the London Stock Exchange have come to be a much-sought form of investment.

The following figures, relating to important nitrate companies, are for the years ended June 30:

Name of company.	Net profits.		Dividends, ordinary and preferred.		To reserve, etc.		Carry forward.	
	1915-16	1916-17	1915-16	1916-17	1915-16	1916-17	1915-16	1916-17
Amelia.....	£49,412	£43,109	£13,820	£13,920	£32,197	£32,847	£3,721	£63
Colorado.....	19,837	15,023	8,000	8,000	7,500	8,277	1,548	294
Lagunas Syndicate.....	4,270	32,623			5,027	32,623		
Liverpool Nitrate.....	103,414	107,819	48,280	68,160	50,000	42,159	11,445	10,549
London Nitrate.....	46,594	44,097	24,000	24,000	22,500	20,000	8,463	8,560
Pan de Azucar.....	1,384	6,526					6,740	13,266
Santa Catalina.....	19,257	18,338	15,800	15,800	1,956	2,470	325	393
Total.....	244,168	267,535	110,000	129,880	119,180	138,376	32,242	33,035

From the following summary of the principal items of the balance sheets it will be seen that there has been a general increase in stocks:

Name of company.	Share capital.	Debentures and loans.	Reserves.	Properties.	Stocks.		Cash and bills.	
					1915-16	1916-17	1915-16	1916-17
Amelia.....	£200,600	£126,900	£37,500	£333,656	£205,942	£253,478	£105,897	£166,770
Colorado.....	160,000	30,373	.....	165,391	36,315	42,555	30,477	28,515
Lagunas Syndicate.....	550,000	394,380	68,197	849,698	27,823	74,897	124,374	159,980
Liverpool Nitrate.....	56,800	.....	71,519	117,865	101,413	115,901	61,089	60,770
London Nitrate.....	160,000	.....	138,155	260,397	33,413	50,822	63,282	84,137
Pan de Azucar.....	110,000	.....	29,131	125,266	15,256	26,445	49,583	59,770
Santa Catalina.....	79,000	.....	18,000	54,694	17,569	26,150	14,725	7,641

The Rosario Nitrate Co., at its annual meeting held April 11, 1917, declared a dividend of 11½ per cent, as compared with 7½ per cent paid the previous year.

A number of the Chilean concerns engaged in the nitrate business have earned large profits during the recent period of prosperity. There has been heavy trading on the Valparaiso and Santiago Stock Exchanges in this class of securities, and there has been a pronounced advance in nitrate shares.

The following table will indicate the quotations on the ordinary (common) shares of a number of the leading nitrate companies whose shares are listed on the London Stock Exchange and on the local "bolsas" of Valparaiso and Santiago:

Companies.	Par value.	Approximate quotations. ^a	Companies.	Par value.	Approximate quotations. ^a
LISTED ON LONDON STOCK EXCHANGE.	<i>English currency.</i>	<i>English currency.</i>	LISTED ON LONDON STOCK EXCHANGES—continued.	<i>English currency.</i>	<i>English currency.</i>
Aguas Blancas.....	£1	£2	San Sebastian.....	1	1½
Alianza.....	5	13½	Santa Rita.....	1	1
Angela.....	1	1½	Santiago.....	1	1½
Anglo-Chilean Railway & Nitrate Co.....	5	19½	Tarapaca & Tocopilla.....	1	1
Colorado.....	5	4½			
Lagunas.....	5	13½	LISTED ON CHILEAN STOCK EXCHANGES.	<i>Chilean paper pesos.</i>	<i>Chilean paper pesos.</i>
Lagunas Syndicate.....	1	8	Antofagasta.....	25	150½
Lautaro.....	5	11	Loa.....	(£1)	5 51
Liverpool.....	(5s.)	(77s.)	El Boquete.....	(£5)	8 80
London.....	1	2½	Agua Santa.....	(£10)	4 245
New Paccha & Jazpampa.....	1	3	Lastenia.....	(£1)	2 2½
New Tamaragul.....	1	1½	La Union.....	20	11
Pan de Azucar.....	5	4½	Castilla.....	20	17
Rosario.....	5	9	Perseverancia.....	20	26
Salar del Carmen.....	1	2½			
San Lorenzo.....	1	3½			

^a The quotations of the shares listed on the London Stock Exchange are for January, 1918; those of the shares listed on Chilean exchanges are for May, 1917.

^b Equal to £2½. ^c £3 12s. 3d. ^d £11. ^e £1½.

One of the most important of the Chilean-owned companies is the Antofagasta Nitrate Co. (La Compañía de Salitres de Antofagasta). This company has a capitalization of 16,000,000 paper pesos and reserve funds of various descriptions (insurance, exploitation, eventualities, general reserve, etc.) to the amount of 22,773,672 paper pesos. Profits for the year 1916 totaled 10,198,656 paper pesos, from which a dividend of 6,400,000 paper pesos equal to 40 per cent on the stock, was paid and the balance carried to various reserve funds.

The production from the seven oficinas in operation during the year amounted to 3,134,881 quintals.

The Compañía Salitrera Lastenia (Lastenia Nitrate Co.), a local company capitalized at £500,000, earned a profit during the calendar year 1916 of £127,086, to which was added £11,187 dividend fund brought forward. From this there was paid during the year in dividends the sum of £123,469, equal to slightly less than 25 per cent on the stock. A total of 1,850,000 quintals was produced during the year, and 1,960,747 quintals were exported.

Iodine, the important by-product of the nitrate belt, was exported during 1915 to the amount of 1,562,764 pounds. Great Britain took 886,300 pounds; the United States, 555,380 pounds; France, 99,296 pounds, and Italy the remainder, 21,788 pounds.

COAL MINING.

Much has been written in the past concerning the coal-mining industry of Chile. While the production of the mineral falls far short of the nation's demands, it is nevertheless an important source of wealth. The difficulty of obtaining coal from foreign lands has caused an increase in the demand during 1916 for the local coal, particularly by railroads and steamship companies and by the mines in the north of Chile. Results in steamship boilers are said to have been better than anticipated, assuring, probably, a steady demand from that source for the product. As previously stated, there were, at the close of the year 1915, 129 coal mines in existence, mostly located within a comparatively short distance of the ports of Talcahuano and Coronel. These mines (such as are working) are operated by 10 mining companies, the production of which will be indicated in a subsequent table. Owing to the limited facilities and the necessity of enlarging many of the mining plants, the demand for the coal has exceeded the supply. The production of coal in Chile and its value and the amount imported during the period 1910 to 1915, inclusive, have been as follows:

Years.	Production.		Value of coal and petroleum imported.
	Tons.	Value.	
1910.....	1,074,174	<i>Gold pesos.</i> 15,038,436	<i>Gold pesos.</i> 33,373,191
1911.....	1,188,053	20,197,071	32,168,560
1912.....	1,334,407	25,353,733	41,624,242
1913.....	1,283,450	24,385,550	46,986,333
1914.....	1,086,946	21,738,920	41,393,200
1915.....	1,171,564	29,289,100	20,289,100

Coal production during 1917 totaled 1,418,000 tons, valued at 38,289,000 gold pesos.

The amount of coal imported during 1913, under normal conditions, was 1,587,084 tons (coal and coke); during the same year 402,349 tons of petroleum were imported. In 1915, under war conditions, only 461,468 tons of coal and coke and 339,065 tons of petroleum were brought into the country. The coal came mostly from Great Britain, Australia, and the United States. The latter country and Peru and Mexico furnished the petroleum.

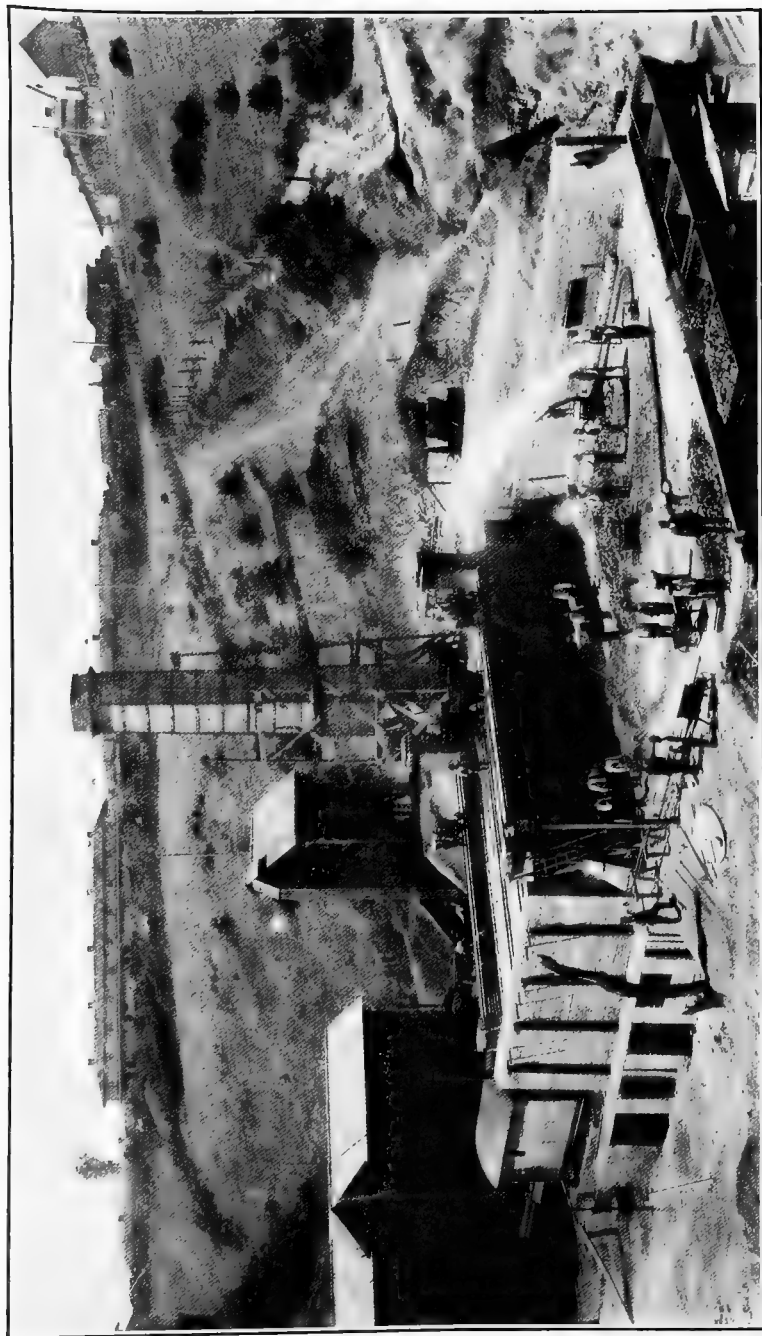


FIG. 14.—SCENE AT LOTA COAL MINES, CHILE.

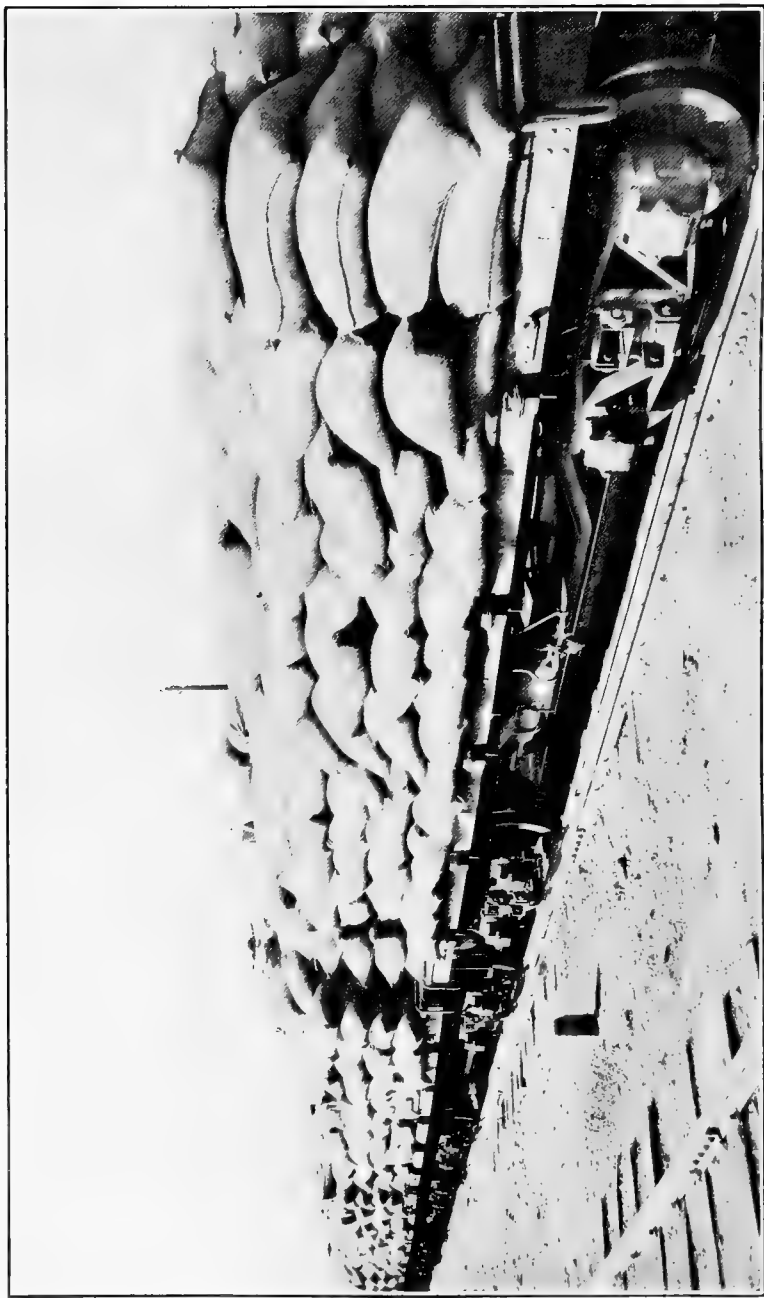


FIG. 15.—TRAIN AT ANTOFAGASTA, CHILE, LOADED WITH NITRATE.

The 10 coal-mining companies and their production during 1915 were as follows:

Companies.	Tons.	Companies.	Tons.
Lota & Coronel.....	393, 611	Loreta Mines ¹	10, 358
Schwager Coal Co.	316, 300	"Victoria" Lebu.....	9, 000
"Rios de Curanilahue".....	221, 785	"Porvenir" Lebu.....	5, 848
Arauco Co.	140, 662	Mafil Coal Co.	200
Lirquen Coal Co.	60, 000	Total.....	1, 171, 564
"El Rosel" Co.	13, 800		

¹ Located near Punta Arenas, Straits of Magellan.

The majority of the above companies are local concerns financed in Chile, their shares being listed on the local stock exchanges. One important concern, the Arauco Co. (see also "Railways," p. 241), is under British control, its securities being listed on the London Stock Exchange. The capitalization of this company consists of £478,000 shares (ordinary) and approximately £556,000 debentures. The shares sell at a premium, and dividends are usually 8 per cent and upward. The value of the shares of the important coal companies in the above list will be found in the following table. With the exception of the Arauco Co., these shares are listed on the Santiago and Valparaiso Stock Exchanges, and the quotations are taken from the lists thereof.

Securities.	Par value.	Approximate market value.	
		January, 1918.	May, 1917.
Arauco Co.:			<i>Paper pesos.</i>
Stock.....	£10	£12	.....
First debentures, 5 per cent.....		90	.....
Second debentures, 6 per cent.....		98	.....
Income debentures, 5 per cent.....	100	78	.....
Lota & Coronel stock.....	a 100		476
Schwager Coal Co. ^b stock.....	10		1, 600
"Rios de Curanilahue".....	a 100		110
Mafil Co.	a 50		65
Victoria de Lebu.....	a 10		9

^a Chilean paper pesos.

^b Compañía Carbonífera y Fundición de Schwager; shares of company valued in sterling at approximately £65.

IRON MINING.

The production of iron ore for the year 1915 amounted to 147,100 metric tons of 70 per cent ore, valued at 2,942,000 Chilean gold pesos. The principal deposit of the ore is found in the Coquimbo district, where practically 1,000,000,000 tons are said to exist. The principal deposits in this district have been acquired in the interests of the Bethlehem Steel Corporation, of the United States. A large fleet of 17,000-ton steamers is to be put in service to handle this mineral, which, it is claimed, can be mined and shipped at a very low cost. The property formerly belonged to a French company known as the Société des Hauts Fourneaux, Forges, et Acieries du Chile, which owns extensive iron deposits at Corral in south-central Chile.

The ore from the Bethlehem Steel Co.'s mines at Cruz Grande is excavated from the side of a hill and sent by means of short aerial ropeways to an overhanging cantilever discharger, by means of which it is discharged into the holds of the steamers, thus avoiding lighterage. The production of iron from these mines will be greatly increased in the future. The property is of considerable value.

In addition to the Cruz Grande mines there are numerous other iron deposits of present and future value. These are mostly situated in the mountain desert lands of northern-central Chile. None are as important as the Cruz Grande mines.

COPPER MINING.

Chile is a nation rich in developed and undeveloped copper ore. This field has attracted large amounts of outside capital, principally from North America. The two principal American companies engaged in the field are the Chile Copper Co., operating the mines at Chuquicamata, near Calama, on the Antofagasta & Bolivia Railway, and the Braden Copper Mines Co., operating the groups of mines known as the "Teniente," "Fortuna," and "Centinela," these being located in the neighborhood of Sewell, Province of O'Higgins. Other important mines are those of the Naltagua Copper Co. (controlled by a French company), which showed a profit of approximately 2,000,000 francs, mostly paid as a 5 per cent dividend on the company's shares.

The production of copper and copper ore during the year 1916 showed an increase of 19,349 tons of fine copper over the 1915 figures. The increased production at the mines of the Chile Copper Co. at Chuquicamata largely accounts for the greater output. The comparative figures follow:

Character of product.	1915		1916	
	Total production.	Fine copper.	Total production.	Fine copper.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Copper bars.....	34,793	34,495	58,468	57,924
Copper ejes.....	17,041	8,101	8,572	4,295
Copper ores.....	62,079	9,485	53,716	9,211
Total.....	113,913	52,081	120,756	71,430

In 1916 the production at Chuquicamata and El Teniente was 1,396,600 tons, as compared with 1,061,280 tons in 1915.

At the close of the year 1915 there were in force 12,049 copper mining claims, scattered throughout almost every Province in the Republic. The value of the product mined during 1915 was 44,287,340 gold pesos of 18d. The 1916 figures, not yet made public, may be said to be far in excess of the 1915 total. Of the total production for 1915, 31,045,067 pesos represented bar copper (99.14 per cent pure copper), 6,156,840 pesos copper ejes (47.54 per cent), 6,924,431 pesos copper ore (15.27 per cent), 96,646 pesos copper and gold ores, and the remainder mixed gold, copper, silver, and lead ores. The mines producing the bar copper (34,394,516 kilos) were as follows:

Establishments.	Kil'os.	Establishments.	Kilos.
Chuquicamata (Chi'e Copper Co.).....	4,964,613	Na'tagua (Na'tagua Mining Co.).....	2,991,000
Chorri'os.....	359,000	El Teniente (Braden Copper Mining Co.).....	16,009,000
Gatico (a Chilean company).....	2,818,448	Lota.....	3,946,000
Catemu.....	3,270,000	Total.....	34,793,061
El Huesco.....	20,000		
El Volcan.....	415,000		

In 1916 the production at Chuquicamata and El Teniente was considerably increased.

From the above total 34,494,519 kilos of pure copper were produced. The total production of bar copper in Chile during the years 1911 to 1914 was as follows: 1911, 16,723,649 kilos; 1912, 17,571,727 kilos; 1913, 20,150,144 kilos; 1914, 25,237,215 kilos. The 1914 production was valued at 19,986,711 gold pesos of 18d. (31,045,067 gold pesos in 1915).

The bar copper from the Braden mines is exported via Valparaiso. The Chile Copper Co.'s bars are shipped via Antofagasta. The Gatico copper bars are partly produced from custom smelting and are shipped from the port of Gatico, located a short distance south of Tocopilla. The concern is known as the Compañía de Minas de Cobre de Gatico, and owns, besides the smelting plant, a well-equipped mole. Employees are said to number nearly 2,000. Substantial dividends are paid. The remainder of the bar copper exported is largely sent through Lota, also noted as a coal-shipping port.

The copper ejes produced in 1915 were exported by the following companies:

Companies.	Ejes.	Pure copper.
	<i>Kilos.</i>	<i>Kilos.</i>
Cia. Minera de Calama (Chi'e Copper Co.).....	322,658	109,703
Société des Mines et Usines de Cuivre de Chanaral.....	3,554,684	1,949,744
Sociedad de Minas y Fundiciones de Carrizal.....	3,389,004	1,163,445
Central Chi'e Copper Co. (Panguillo copper mine and smelter).....	6,301,928	3,150,964
Cia. de Minas y Fundición "Incienso".....	499,130	264,539
Guayacan.....	2,495,177	1,247,588
El Porvenir.....	478,052	215,123
Total.....	17,040,633	8,101,106

About one-half of the unsmeltered copper ore exported was sent through the port of Antofagasta. The remainder was shipped from Coquimbo, Caldera, Mejillones, Tocopilla, Taltal, Chanaral, Huasco, and various other ports and was produced by a large number of companies.

The Chile Copper Co., controlled by Guggenheim interests, is capitalized at \$110,000,000 United States currency, consisting of \$95,000,000 common or capital stock and \$15,000,000 bonds convertible into stock at par. The mining property covers a very extensive area. Values of copper obtained are said to average slightly more than 2 per cent, with an average 90 per cent extraction, the yield per ton thus averaging about 36 pounds. Mr. Pope Yeatman, consulting engineer for the company, estimates, on the basis of 2

per cent copper, that the cost of the finished product, including delivery to New York or to European points and selling commissions, would be approximately \$121.06 United States currency per ton. This, including all mining costs, would indicate that copper can be produced and delivered from the mines at about \$0.06 per pound, a low record for porphyry copper mines. Owing to existing war-time conditions, costs are exceeding the estimates.

With its 10,000-ton plant in full service, the production of copper, at the average yield, would amount to about 120,000,000 pounds per annum, and with a 30,000-ton plant (probably the maximum production) 360,000,000 pounds of copper annually. On the 303,300,000 tons of copper in sight, the life of the mine would be 87 years at 10,000 tons per day or 29 years at 30,000 tons per day. With 400,000,000 tons of ore developed, its life would be 114 years and 38 years, respectively.

The table that follows indicates the estimated annual operating profits and the earnings per share, based on present capitalization, in handling 10,000 or 30,000 tons of 2 per cent copper daily. Costs are figured at the estimated rate of \$0.06 per pound:

Copper at—	10,000-ton plant operating.		30,000-ton plant operating.	
	Annual profits.	Profits per share.	Annual profits.	Profits per share.
	U. S. currency.	U. S. currency.	U. S. currency.	U. S. currency.
14 cents.....	\$10,080,000	\$2.29	\$30,240,000	\$6.87
16 cents.....	12,600,000	2.86	37,800,000	8.58
18 cents.....	15,120,000	3.43	45,360,000	10.30
20 cents.....	17,640,000	4.00	52,920,000	12.01
22 cents.....	20,160,000	4.57	60,480,000	13.72
24 cents.....	22,680,000	5.14	68,040,000	15.43
26 cents.....	25,200,000	5.71	75,600,000	17.14
28 cents.....	27,720,000	6.28	83,160,000	18.85
30 cents.....	30,240,000	6.85	90,720,000	20.56

The par value of the shares of the company are \$25.

During the year 1917 the production of copper at the Chile Copper Co. mines was 88,458,110 pounds, the largest quantity produced by any mine in South America.

In August, 1916, the Chile Copper Co. acquired the properties of the Calama Mining Co. for the sum of 7,000,000 Chilean paper pesos and will thoroughly develop these important mines. Following the acquisition of these copper mines the Chile Copper Co. petitioned for and obtained permission to acquire the franchise to construct a railway to connect with a branch of the Antofagasta & Bolivia Railway running from Conchi, 299 kilometers (186 miles) from Antofagasta. The principal properties are known as the San Jose del Abra Mines.

The Braden Copper Mines Co. is controlled by the Kennecut Copper Co., which also operates large and important copper properties in Alaska. The Braden Copper Mines Co. stock, which has mostly been exchanged for Kennecut shares, consisted in 1916 of 2,800,000 shares of a par value of \$5, of which \$12,981,500 was outstanding and the balance reserved for the conversion of \$1,018,500 bonds (mostly 7 per cent bonds). In addition to the stock the company

had outstanding \$4,000,000 first-mortgage bonds of the Braden Copper Co., the entire stock of which is held by the Braden Copper Mines Co., and \$15,000,000 15-year 6 per cent bonds. The first-mortgage bonds of the Braden Copper Co. are owned by the Braden Copper Mines Co. The shares sell in the New York market at a very large premium.

The Braden Copper Co. is registered in Chile and owns in fee at or near Sewall, Province of Rancagua, central Chile, 174 mining claims, equal to about 2,362 acres, and at Rancagua, Chile, owns about 16 acres for railway terminals and shops. At the present time it also has a concentrator with a capacity of 4,400 tons of ore per day, a complete smelting and converting plant, a hydroelectric power plant of 800-kilowatt capacity, and its own electric and steam railway—the latter about 43 miles long, connecting the company's properties with Rancagua, situated on the State Railway, about 43 miles southeast of Santiago.

The principal mines, as has been elsewhere stated, are known as "Teniente," "Fortuna," and "Centinela." These mines were discovered and worked by the Spaniards during the early part of the eighteenth century; later they were owned and operated by Chilean interests. The Braden Copper Co. acquired the property in the year 1904 and has carried on very extensive development work. Labor conditions are stated to be good. The ore is a concentrating copper ore, occurring as a sulphide in brecciated andesite around the periphery of an extinct volcano.

Mr. Pope Yeatman, consulting engineer of the Braden Copper Co., estimated, as of January 1, 1915, that the property contained 113,694,880 tons of ore, with an assay value of 2.84 per cent, and allowing for dilution in mining he reduces this value to 2.5 per cent. The final cost of production Mr. Yeatman estimates will be \$0.06½, delivered either to New York or to European markets (under normal conditions all Braden copper is sold in Europe), and the value of the copper contents he places at \$324,030,408 United States currency. The life of the mines is placed at 32 years from January 1, 1915, based on the above tonnage, with a plant having a capacity of 10,000 tons of ore per day.

It is expected that, with the 10,000-ton plant in full operation and handling the average grade of ore, the production will amount to 136,800,000 pounds of copper per annum, which would yield the following earnings, based on the estimated cost of production: 12-cent copper, \$7,524,000 United States currency; 13-cent copper, \$8,889,000; 14-cent copper, \$10,260,000; 15-cent copper, \$11,628,000; 16-cent copper, \$12,996,000; 18-cent copper, \$15,732,000; 20-cent copper, \$18,468,000; and a further profit of \$1,368,000 per annum for each 1 cent advance in the price of copper above 20 cents.

The operating cost for the year ended August 31, 1915, during which period the plant had not nearly attained full capacity, was 9.18 cents per pound, of which 2.33 cents was expended for mining, 3.26 cents for milling, 2.45 cents for smelting and converting, 0.13 cent for general expense New York, 1.17 cents for freight and delivery expenses, and 0.13 cent for selling commission. The employees numbered during 1916 between 1,500 and 1,800 men.

During a period of 15 months between January 1, 1915, and March 31, 1916, the following results were attained:

Items.	Amount.
	<i>United States currency.</i>
Copper produced, 46,822,116 pounds, at 19.356 cents average sales price	\$9,063,213
Operating costs, including delivery costs	4,501,049
Operating profits	4,562,164
Total profits, including miscellaneous income	5,228,404
Net profit after interest deductions	3,599,977
Discount on bonds sold	1,350,000
Surplus for 15-months period	2,249,977

During 1917 the production at the Braden mines totaled 64,060,000 pounds.

An American syndicate has acquired and will work on an extensive scale the valuable group of copper mines known as the Tamaya mines. The Tamaya Copper Co., which controls these properties, is capitalized at \$5,000,000 United States currency. There are now at work a large number of engineers and workmen. The Tamaya mines are located in the Province of Coquimbo, between Ovalle and Tongoy. The railway that runs from Tongoy to Ovalle was originally constructed from the former town (which is a minor port located 27 miles to the southward of Coquimbo) to the Tamaya mines. The line was built to the mines at as early a date as 1867, but, owing to the mine's being flooded and abandoned some years later, about 11 miles of the railway were abandoned and the destination of the line was changed to the town of Ovalle. This railway has since been acquired by the State and forms a portion of the Coquimbo Railway system. The Tamaya branch connects with the main line to Tongoy at Trapiche. There is a smelting works at Tongoy, which is a port of moderate importance for coastal trade and is sheltered from northerly winds. The ships loading here anchor about half a mile from the shore. Probably 150 tons of freight could be loaded there in a day. With a fair original outlay and efficient pumping plant (something not at the disposal of the former mine owners), the mine is expected to produce copper in large quantities. The property is an extensive and important one, and a long life as a producer is expected.

Space will not permit an extensive discussion concerning the local Chilean concerns engaged in copper mining. There is a large amount of local capital in various copper undertakings. Prominent among these concerns may be mentioned the following, all of which are public stock companies whose shares are listed on the Santiago and Valparaiso stock exchanges. The par value and approximate market quotation of the shares are indicated:

Companies.	Par value.	Approximate market value, May, 1917.
		<i>Pesos.</i>
Disputado	25 pesos ..	17.00
Gatico	£1	51.25
Poderoso de Collahuasi	£1	30.00
San Bartalo	20 pesos ..	9.00

Other important companies in the field are the Central Chile Copper Co., an Anglo-Chilean company, and the Sociedad de Minas y Fundición de Carrizal, also an Anglo-Chilean concern, which owns extensive mining properties at Carrizal.

SULPHUR MINING.

As of December 31, 1915, there were in effect 605 sulphur-mining claims, these being scattered throughout various sections of the Republic. The deposits yielded 9,769 tons during 1915, valued at \$422,021 United States currency, and a considerably larger amount during 1916. In 1913 the production was valued at \$280,640 United States currency. The production from 1910 to 1915 was as follows: 1910, 3,823 tons; 1911, 4,451 tons; 1912, 4,431 tons; 1913, 6,647 tons; 1914, 6,647 tons; 1915, 9,769 tons.

The largest sulphur-producing mine is the Buena Ventura, owned by Señor J. S. Concha and located near the town of Ollague at the foot of Mount Ollague, a live volcano, on the main line of the Antofagasta & Bolivia Railway. Another mine of growing importance is located at Tacora on the Arica-La Paz Railway. The various sulphur producers of Chile and their output for the year 1915 are as follows:

Mines.	Owners.	Tons produced.
Ollague (Buena Ventura).....	J. S. Concha.....	2,600
Tacora.....	A. Dondero.....	1,000
Villa Industrial.....	Espado Bros.....	2,485
Chupiquina.....	Muecke & Co.....	500
Agua Calientes.....	Vaccaro Bros.....	2,000
Ancanguilcha.....	J. B. Carrasco.....	864
Santa Rosa.....	M. Ballesteros.....	240
Carcote.....	Carcote Sulphur Co.....	100
Total.....		9,796

GOLD MINING.

Gold has been produced in Chile since prehistoric times. It exists in various parts of the Republic from the far northern Provinces to Tierra del Fuego in the far south. At the close of 1915 there were 2,584 gold claims registered in Chile. The gold production of Chile for the year 1915 was 1,335,524 grams, valued at \$296,922 United States currency. The figures for 1913 were \$278,667. A large portion of the 1915 output was produced by the various copper mines as a by-product. Some of it was dredged, however.

What was believed to be an important discovery in gold was made in the year 1911 at Patu, near Constitucion, no great distance south of Santiago. A company known as the Compañía Orero de Patu was formed with a capitalization of £85,000. There was a wild rush to buy these shares and on one occasion they sold at 220 per cent of par. The deposits turned out to be only of small depth and soon gave out altogether. However, a fair amount of ore was taken out previous to this and a large portion of the original investment was recovered. Operations at the mine were completely suspended early in 1913.

American interests have recently been investigating Chile as a field for gold development. As a result these interests (a New York syndicate) have purchased for the sum of 1,000,000 paper pesos the gold mines of Cerro Pillay, located in the department of San Javier. The Vacas Gold Mines, under local management and control, are likewise of importance. The shares, which are of 10 pesos par value and sell at approximately 9 pesos, are listed on the stock exchanges of Santiago and Valparaíso.

There are a number of undeveloped gold deposits in Chile. These, however, are located in districts remote from means of transportation. Deposits have been located in the Provinces of Tacna, Atacama, Coquimbo, Maule, Valdivia, and in the Territory of Magallanes, including the island of Terra del Fuego. Gold is likewise known to exist in other Provinces.

SILVER MINING.

Silver mining is not carried out on a large scale in Chile. The total production for the year 1915 was 40,445,061 grams, valued at \$367,277. United States currency. There were in force at the close of 1915 a total of 605 silver-mining claims, in addition to 2,065 gold, silver, and copper. A very large portion of the silver produced during the year was mined as a by-product of various copper-mining companies.

CHILEAN SALT DEPOSITS.

At the close of 1915 there were in force in Chile 378 claims for salt mines. The total production for the year amounted to 30,266 metric tons, valued at 1,059,309 Chilean gold pesos. This was the record production to date, comparing with 24,805 tons in 1914, 19,558 tons in 1913, and 17,045 tons in 1912. Of the 30,265,978 kilos produced during 1915, 15,443,800 kilos were taken from the Punta de Lobos Salt Mines, owned by the Compañía Esplotadora de las Salinas de Punta de Lobos. The production of this mine was valued at 540,533 gold pesos. Of the remainder of the Republic's production, a total of 8,100,000 kilos was taken from the salt lagoons owned by the firm of Vera Bros., 2,100,428 kilos from the Chacalluta mines, 2,000,000 kilos from the Juan Landeta lagoon, 2,000,000 kilos from the N. Landeta lagoon, 500,000 kilos from the J. Morral lagoon, 71,750 kilos from the Escritos deposits, and 50,000 kilos from the lagoon owned by the German Transatlantic Bank. About 350 men are employed in the salt industry.

MISCELLANEOUS MINING DATA.

Recent statistics indicated that the mining industry of Chile employed a total of 84,781 persons. Of these 53,161 were employed in the nitrate industry, 14,221 in copper mining, 4,250 in the metallurgy of copper, 8,414 in the coal mines, 830 in borates, and the remainder in various other mines of the Republic.

This account can not be closed without a word concerning the famous borax lake located at Cebollar near Ascotan on the Antofagasta & Bolivia Railway. This is chartered by the British-owned

Borax Consolidated (Ltd.), the largest borax concern in the world. The lake is 24 miles long and is located at an altitude of 12,200 feet. The Borax Consolidated (Ltd.) has outstanding approximately £4,000,000 shares and debentures.

OIL IN CHILE.

Petroleum has been found in various localities throughout southern Chile, including the island of Chiloe and the Patagonas district. Large quantities of this oil are believed to exist, and much is hoped for in the development of this field, which at present is hardly more than in its infancy. The claims in force at the close of 1914 numbered 3,363; these were, however, reduced during 1915 to 2,041. The principal public stock concerns in the field are the following:

Companies.	Par value of shares.	Market value of shares May, 1917.
	<i>Pesos.</i>	<i>Pesos.</i>
Chiloe.....	5	2.90
Pacifico.....	10	.95
Patagonia.....	2	1.90
Sud Americana.....	2	1.35

The above quotations are taken from the list of prices on the Santiago Stock Exchange.

Petroleum also exists in northern Chile, near the Bolivian frontier, on the slope of the mountains (latitude 22° 10' 30" south). This district has not been fully explored.

INDUSTRIAL DEVELOPMENT.

Manufacturing in its various branches has made fair headway in Chile. The peculiar formation of the country and the presence of numerous cities of fair size, each the center of some mining or other industry, results in a certain localization of the various manufacturing enterprises, each in its own region. Recent statistics showed that no less than 529,197,477 paper pesos was invested in manufacturing enterprises in Chile and that the most important of these factories produced during the year 1913 goods valued at 331,269,189 paper pesos. The employees numbered 80,697, and the average wages, were 3.28 paper pesos.

As an indication of the development of manufactures in the Republic there is given below a table that indicates the principal industries, the number of establishments, the amount of capital invested in these various enterprises, and the production. The figures are in Chilean paper pesos. This table indicates the wide diversity of manufactures in the country and the fact that the largest investments are in mills, breweries, sawmills, sugar refineries, tanneries, furniture factories, and shoe factories.

Class of establishments.	Number of establishments.	Capital invested.	Production.
		<i>Paper pesos.</i>	<i>Paper pesos.</i>
Breweries.....	63	32,004,187	19,496,541
Glass manufacturers.....	3	3,499,059	2,747,973
Mills.....	179	73,160,603	87,217,319
Sugar refineries.....	8	25,987,501	29,602,420
Macaroni and vermicelli factories.....	40	5,354,981	4,699,056
Biscuit factories.....	12	2,274,874	3,870,340
Fruit canneries and manufacturers of fruit products.....	24	8,975,033	3,623,852
Meat factories.....	6	948,000	1,050,543
Shipyards.....	32	5,575,543	3,339,110
Hat factories.....	11	6,545,651	4,974,794
Corset manufacturers.....	5	1,643,438	2,185,282
Furniture factories.....	134	28,965,458	30,264,526
Sawmills.....	296	17,587,722	10,209,759
Cement factories.....	3	4,358,000	2,703,000
Textile mills.....	18	14,456,562	12,584,555
Manufacturers of industrial and agricultural machinery.....	2	4,580,000	3,800,000
Manufacturers of railway cars.....	4	2,155,913	3,645,446
Printers and publishers.....	302	26,218,181	36,154,862
Tanneries.....	129	30,698,491	29,617,205
Shoe manufacturers.....	45	20,988,120	26,366,961
Powder manufacturers.....	9	146,434	830,681
Soap manufacturers.....	66	10,432,395	12,284,984
Total.....	1,391	326,536,146	331,269,189

These manufactures largely represent local investments. The British are interested in the Chilean Mills (Ltd.), which manufactures and dyes cotton goods, in the Chilean National Ammunition Co. (Ltd.), and in other minor enterprises. Shares, it is said, are also held by British investors in the important Vina del Mar Sugar Refinery. This latter concern, which refines large quantities of sugar (mostly from Peru), is capitalized at 7,133,333 gold pesos. Profits for the second six months of 1916 amounted to 1,973,706 gold pesos, from which a dividend of 1,248,333 pesos, or $17\frac{1}{2}$ per cent, was paid. Large reserves are on hand.

The sugar refineries in Chile are generally successful. The shares of the Vina del Mar Refinery Co. (see above) sell at more than three times par; the Chiclayo Refinery shares are worth about par; Penco del Azucar shares sell at about five times par.

The principal cement factory is owned by the Compañía Fábrica de Cemento Melon. This company has been very successful and its shares are quoted at about $3\frac{1}{2}$ times par. Quarterly dividends of 5 per cent each are being paid.

Among the various breweries the Compañía Cervecería Unida is probably the most important. The latest semiannual dividend was 15 per cent. Shares are worth about 240 per cent of par.

MISCELLANEOUS FORMS OF INVESTMENT.

OPERATION OF ASCENSORS.

A form of investment quite popular in Valparaiso is in shares of the various local "ascensores" companies operating so-called ascensores from the lower portions of the city to various points on the heights. Owing to the peculiar topography of the city these ascensores are numerous and represent a considerable investment. Shares of 10 of these companies are listed on the Valparaiso Stock Exchange and most of them sell at a premium. The Compañía de Ascensores Mecánicos is probably the most successful of these concerns, 50-peso shares being

worth 200 pesos. The Cerro Alegre, the Reina Victoria, and the Larrain companies are likewise profitable, the last-mentioned concern paying semiannual dividends of 7 per cent each.

STORES AND HOTELS.

British interests, similar to those in control of the South American Stores in Argentina and elsewhere, operate a large department store in Santiago, known as the Chilean Stores (Gath & Chaves, Ltd.). This company is capitalized at upward of \$1,400,000 United States currency and does an extensive business (see Appendix, p. 514). There are other large stores of like character in Santiago and elsewhere, controlled by Chilean, French, and Italian concerns. There are no American department stores in Chile. German capital is largely invested in the drug business throughout Chile. There are several British printing, stationery, and book stores, as well as one British weekly newspaper. Other newspapers are numerous and represent a very large investment of local capital.

Hotels in Valparaíso and Santiago are far from sufficient for the needs of the cities. A new modern fireproof hotel is being erected in Santiago, but even this will be insufficient to take care of the business. Rather high rates are obtainable, and the margin of profit should be very large.

STEAMSHIP LINES.

There is one important steamship line, as well as several smaller ones, flying the Chilean flag. The most important of these companies is the Compañía Sud-Americana de Vapores. The dividend paid by this steamship company during the year 1916 amounted to 72 per cent, as compared with 20 per cent in the year 1915 and an average of approximately 10 per cent in previous years. The total net profit for the year 1916 amounted to 7,028,373 gold pesos, as compared with 2,213,037 pesos for the year 1915. Of the profit for 1916, 3,616,595 pesos was earned during the second half. Gross earnings for this latter period were 7,236,823 gold pesos, and for the entire year approximately 14,000,000 pesos. The capitalization of the company consists of 7,500,000 pesos shares, par value 100 pesos. These shares recently sold as high as 700 pesos, reflecting the great prosperity of the company. Reserves as of December 31, 1916, amounted to 4,680,712 gold pesos.

The company owns 10 steamships of a total net register of 14,808 tons, with tugs, lighters, etc., of a total of 3,870 tons additional. The original cost of the fleet was 10,259,000 gold pesos, which has since been written down to 2,146,982 pesos. The steamers are operated between Colon and Panama on the north and Paita, Salaverry, Callao, Mollendo, Arica, Iquique, Antofagasta, Coquimbo, Valparaíso, etc.

SANTIAGO AND VALPARAÍSO STOCK EXCHANGES.

The two "bolsas" or stock exchanges in Chile are very important institutions and, because of the general prosperity of the industries (particularly the mining industries) of the Republic, are cen-

ters at present of considerable activity. The approximate average annual business of the two stock exchanges is as follows:

Securities.	Stock exchanges.	
	Santiago.	Valparaíso.
Stocks.....shares.....	3,018,800	3,715,308
Bonds.....pesos.....	80,534,400	53,239,820

During the first four months of 1917, the average daily transactions in shares on the Valparaíso Stock Exchange amounted to 22,700. On the Santiago Stock Exchange transactions in shares varied from 20,000 to 30,000 shares daily. The Santiago Stock Exchange or Bolsa de Comercio, which is a corporation, showed a profit of 267,585 pesos during 1916, an increase of 32,341 pesos over the 1915 figures. Shares in the Santiago Bolsa de Comercio, which have a par value of 1,000 paper pesos, have a market value of about 63,000 pesos, and shares in the Valparaíso Bolsa de Corredores, with a par value of 5,000 paper pesos, are worth 100,000 pesos. A large number of nitrate, copper, Bolivian tin, coal-mining, and industrial companies have enjoyed unprecedented prosperity, which has been reflected in the greater activity of their shares. Practically every branch of business in Chile is in excellent condition and shares have generally advanced in market and intrinsic value.

LUMBERING ACTIVITIES AND TIMBER RESOURCES.

The forest lands of Chile cover approximately $5\frac{1}{2}$ per cent of the total area of the Republic. These timber tracts are located largely in the south-central portion of the so-called "agricultural zone" and in the "island zone" as far south as the northern boundary of the Magallanes Territory. Some of the timber areas are large and important, among which may be mentioned a tract of about 100 square miles extending from near Valdivia to Temuco. The timber in this area averages about 9,000 feet to the acre. Additional tracts of great size are found in the island of Chiloe, to the south of Puerto Montt. The 60-mile, narrow-gauge railway constructed by the Government will make this timber available for shipment. Oak, Chilean mahogany, laurel, ash, pine, and other varieties of woods, hard and soft, are found. About 3,000 sawmills have been established. They are, however, mostly small. There are also pulp mills, shingle mills, etc., in limited numbers. Notwithstanding its forest areas, Chile is still importing lumber in large quantities. Transportation facilities in the forestal belt are extremely limited owing to the scarcity of roads. Most of the lumber is taken to the railway stations and sidings by wagons drawn by oxen. At the stations the lumber is graded into firsts, seconds, and thirds, the first and second grades going into floorings and finished boards and the third grade into boxes. This timber is generally kept at the railway centers for some time and is not shipped until dried and seasoned. The average price for first and second grade lumber, which constitutes about 60 per cent of the total cuttings, is from \$12 to \$18, United States currency, per 1,000 feet. The ash brings \$25 per 1,000 and third-grade box lumber is worth about \$8 per 1,000 feet. Shingles, usually packed in bundles of 100, bring approximately \$3 per 1,000.

The Chilean Government, through the Department of Public Works, has at the disposal of those interested a considerable amount of useful data concerning its forest areas and opportunities therein. Plans have been laid for the construction of additional railways in the timber districts, assuring better facilities in the future for the marketing of the product; labor costs are not high and workmen are fairly plentiful. It may be said that the field offers opportunities for the investment of fair-sized amounts of capital.

AGRICULTURE AND VITICULTURE—LIVE STOCK-INDUSTRY.

Development along agricultural lines has been fairly steady during recent years. The rich central valley of the Republic produces grains, fruits, and vegetables of excellent quality and in good quantities. The Government is rendering assistance to the farmer and fruit grower through the development of an excellent system of irrigation canals, on which millions of pesos are being expended annually. During the years 1914 and 1915 Chile imported and exported vegetable products of the following values: 1914—Imports, 38,799,996 gold pesos; exports, 16,665,222 gold pesos. 1915—Imports 36,265,692 gold pesos; exports, 19,811,574 gold pesos.

During the year 1914-15, 5,218,036 metric quintals of wheat were produced, 2,597,964 quintals of potatoes, 2,857,923 quintals of hay, as well as large quantities of barley, oats, beans, maize, etc.

The grape industry in Chile is extremely important, a splendid variety of the fruit being raised in large quantities. Grapes are grown from Coquimbo as far south as Concepcion. Those produced in the districts near Coquimbo are used mostly for the making of wine, although fair quantities are sold for table purposes. Farther to the south the quality of the grapes improves and splendid varieties of wines are produced. The wine-making industry is most developed in the Provinces of Santiago, O'Higgins, and Colchagua, especially near the Maipo River. There are scores of large vineyards in this district. Farther to the south the quality of the grapes is not quite so good, though an excellent variety of wine is produced.

The wine is made and bottled or casked in some instances by the vineyard owners, in other cases by cooperative societies made up of a number of producers, or else the product is sold to wine distilleries. Several of these are capitalized at from \$300,000 to \$1,000,000 United States currency. There are a few foreign capitalists interested in the wine industry, but most of the undertakings are financed by local companies or individuals. Despite the excellent quality of Chilean wines, the exports in 1914 and 1915 amounted to only 175,245 gold pesos and 237,583 gold pesos, respectively. In comparison, foreign wines and liquors to the value of 4,102,085 and 2,225,471 gold pesos were imported during the two years. The production of wines during 1915 amounted to 2,329,896 hectoliters, to which might be added 346,787 hectoliters of light wines. It seems strange that Chile does not export larger quantities of the product. However, its two most available markets, Peru and Argentina, are also producers. A campaign of publicity in foreign countries would doubtless greatly increase the exportation.

It is very difficult to form an estimate of the value of vineyard lands. Developed vineyards are worth anywhere from \$500 to

\$2,500 United States currency per hectare, depending wholly on the location.

The raisins produced during 1915 amounted to 10,251 quintals.

The raising of domestic animals has become a very important industry in Chile, particularly in the Territory of Magallanes, where numerous large estancias exist, a number of them operated by large stock companies, some locally controlled, others under British or German ownership. Two of the important companies, financed locally, are the Tierra del Fuego Exploration Co. and the Laguna Blanca Co. Shares in these companies are worth several times par. Dividends of 20 per cent and upward are paid by them.

As of December 31, 1915, the number of live stock in Chile was as follows (a comparison with Dec. 31, 1913, is also shown) :

Live stock.	1915	1913	Live stock.	1915	1913
Horses.....	725,181	470,332	Sheep.....	4,592,620	4,900,000
Donkeys.....	36,930	38,100	Goats.....	393,758	311,050
Mules.....	61,980	42,050	Pigs.....	229,416	170,000
Cattle.....	1,943,954	1,900,067	Llamas.....	22,675	.....
Alpacas.....	13,108	.....			

Of the 4,900,000 sheep in Chile December 31, 1913, 1,910,814 were in the Territory of Magallanes. The production of wool during the year 1916 amounted to approximately 20,000,000 pounds, as compared with approximately 9,400,000 produced in Peru. Exports for 1914 and 1915 were as follows: 1914, 12,162,330 kilos, valued at 9,950,398 gold pesos; 1915, 12,004,580 kilos, valued at 10,607,046 gold pesos.

A recent estimate made public by the Chilean Government indicated that land capable of cultivation for agricultural or fruit-raising purposes covered the following areas: Agricultural lands in cultivation, 280,256 square kilometers; territory in north capable of cultivation, 40,000 square kilometers; territory in Magallanes capable of cultivation, 60,316 square kilometers; territory wholly or in part barren (not fully explored), 370,000 square kilometers; total, 750,572 square kilometers.

A total of 27,020 agricultural machines are in service (3,777 motor).

SUMMARY OF CHILEAN FIELD.

Chile is prosperous and seems destined to maintain its prosperity. The rapid expansion of the mining industry and the general progress made along other lines is inviting very substantial sums of foreign capital, particularly (since the beginning of the war) American capital. While official figures are lacking as a means of confirmation, it is the writer's belief, following a study of investment conditions in South America, that Chilean enterprises have returned relatively larger sums on foreign capital than have investments in any other Republic in the Southern Continent.

The country has a progressive and enlightened Government and enjoys the confidence of foreign financiers and investors, inasmuch as it has never defaulted in its obligations, despite the fact that it has been a borrower for approximately 95 years. The field is generally worthy of the attention of capitalists.

COLOMBIA.

INTRODUCTION.

The Republic of Colombia has an area variously estimated at from 430,000 to 470,000 square miles. Its population, according to the census of 1912, totaled 5,072,604—the capital, Bogota, having 121,257 inhabitants, Medellin (the second city in size and importance) 71,004, and Barranquilla 48,907. Cartagena, Manizales, Sonson, Cali, Aguadas, Ibague, and Palmira are each estimated to have more than 25,000 inhabitants.

Large sections of Colombia are extremely mountainous, three ranges or cordilleras extending in a general northeast-and-southwest direction. The western range of these mountains borders the Pacific Ocean, the central is located between the Cauca and the Magdalena Rivers, and the eastern, on which Bogota is located, slopes down to the headwaters of the Amazon and its tributaries. One of the spurs of this eastern range finds its way far into Venezuela, forming the backbone of that Republic.

Numerous rivers of more or less importance play a considerable part in the economics and commerce of the Republic, the most important of these rivers being the Magdalena, which is not less than 1,020 miles in length and the main highway to Medellin, Bogota, and other large cities. This river is navigable for steamers over a large part of its course, although at one point a succession of rapids makes necessary the use of a railway. The Cauca River, which rises at no great distance from the headwaters of the Magdalena, joins the latter not far from the Caribbean Sea. The actual length of the Cauca River is 820 miles, and it is navigable for 325 miles in two sections.

The Atrato, the most westerly of the Republic's large rivers, empties into the Pacific at no great distance from the boundary with Panama. The river is of great depth in parts and is of considerable importance. Its length is more than 350 miles, about two-thirds of which is navigable. There are also a number of rivers of more or less importance emptying into the Atrato, Magdalena, and Cauca, while a number of large streams find their way into the Amazon and Orinoco Rivers.

The natural resources of Colombia are very great, and the country will offer constantly increasing opportunities for the successful investment of capital. As will be shown, the railway mileage is very small, and development along general lines has been extremely restricted owing to lack of capital. But the country is progressing at a substantial pace and capitalists are awakening to its potential resources. The mining industry holds great future promise, and already a number of important mines have been developed by American and European capitalists; there are oil, coal, emeralds, gold,

copper, and various other minerals, banana lands, fine agricultural areas, grazing lands of almost limitless area, and vast forests. Opportunities for the gradual development of the public-utility field exist, since thus far no great progress has been made and already certain cities of the Republic have given evidences of sufficient credit to secure loans from American bankers at moderate interest rates.

EXTERNAL DEBT.

In 1889 the Republic of Colombia, which in 1886 had changed its name from the United States of Colombia, arranged a plan to provide for the consolidation of the debt assumed by the Republic. The new bonds for which the plan provided were to be known as "The Consolidated External Bonds of 1890," to be issued to the amount of £2,420,000 and to bear interest at the rate of 3 per cent per annum until December 31, 1899, and at 4 per cent per annum thereafter. The principal of the old bonds was to have been converted into the new bonds at par and interest in arrears at 50 per cent of the nominal value. Twenty per cent of the gross customs receipts of the country were to have been assigned to the payment of the interest on the new bonds and the sum of £12,000 per annum assigned as a sinking fund, the Government to have the right to redeem the bonds by drawing at 70 per cent of par until December 31, 1894, and at 80 per cent thereafter.

This plan, which had been agreed upon by representatives of the Government and the Committee of Foreign Bondholders, of London, representing the bondholders, did not meet with the approval of the Colombian Congress, and in 1896 the above agreement was modified, the interest rate being placed at $1\frac{1}{2}$ per cent for the first three years, 2 per cent for the second three years, $2\frac{1}{2}$ per cent for the third three years, and 3 per cent per annum thereafter. The sinking fund was placed at $\frac{1}{2}$ per cent, cumulative, for the first three years, 1 per cent for the second three years, and $1\frac{1}{2}$ per cent thereafter, cumulative.

In 1900 the interest on the loan was not met; payments were resumed July 1, 1905, and the sinking fund, which had likewise been suspended, was resumed January, 1910. The unpaid coupons were exchanged for non-interest-bearing certificates, 70 per cent of which were paid off in 1907 and 1908, the remaining 30 per cent being subject to the settlement of certain alleged claims of Colombia against another Government.

In 1906 the Government issued £300,000 5 per cent bonds, secured on the property of the Bogota-Sabana Railway, the proceeds of the loan to be used to convert the paper currency of the country. The sinking fund for this issue was fixed at 1 per cent per annum, cumulative. Approximately £275,000 of these bonds remained outstanding in 1916 (see "Railways," p. 273).

In 1911 7,560,000 francs (£300,000) 6 per cent bonds were issued in France, being offered for public subscription at about 98 per cent. The bonds were declared redeemable within 30 years through the operations of an accumulative sinking fund, and the entire service on the loan guaranteed by the assignment of 3 per cent of the entire customs revenue. This issue is known as the 6 per cent external gold loan of 1911.

During the year 1913 £1,500,000 bonds were authorized, practically all of which were issued in exchange for the 6 per cent bonds of the Colombian National (Girardot) Railway, on the following terms:

Class of former bonds (Colombia National Ry.).	Former amount of railway bonds outstanding.	Percentage of new bonds offered for old bonds.	New bonds.
6 per cent first mortgage debentures.....	£290,000	107	£214,000
6 per cent second mortgage debentures, including £84,000 overdue interest.....	400,000	85	340,000
6 per cent customs-guaranteed bonds.....	430,000	95	408,500
6 per cent customs-guaranteed debentures.....	450,000	95	427,500
Total.....	1,480,000	.....	1,390,000

Approximately £1,224,360 of the Government bonds were issued in exchange for the railway bonds, and of those issued approximately £981,000 remained outstanding at the close of 1917. The bonds were quoted at 70 in January, 1918, this comparing with the high price since 1911 of 88½ and the low price of 55. The Government bonds are to be redeemed by purchase in the market, or by drawings at par, on or before March 1, 1947. The yearly service is secured by the hypothecation of 7 per cent of the annual customhouse receipts of the Republic, any deficiency to be made up from general revenues (see account of Colombian National Railway, p. 272).

Referring again to the Consolidated External Debt, the present interest rate on which is 3 per cent per annum, it may be stated that interest has been regularly maintained since 1906, even during the extremely difficult war period. The sinking fund payments were suspended during a portion of 1915 and of 1916. The amount of bonds outstanding just before the close of 1917 was £2,078,400, which total has since been reduced slightly. The £590,000 bonds purchased for redemption by the Government cost £291,195, an average of 49.35 per bond. The price of bonds under the issue in January, 1918, was 49½, as compared with 50¼ at the closing of the London Stock Exchange, July 27, 1914.

The Government of Colombia has guaranteed interest on a small amount of bonds of railway companies operating in the Republic (see "Railways").

The total external debt of Colombia amounts to \$3.50 United States currency per head.

INTERNAL DEBT.

According to the statement of the Committee of Foreign Bondholders, of London, the total internal debt of Colombia, as of May, 1915, amounted to \$5,376,888 silver, the interest on which amounts to £27,476 per annum. The interest rates on certain of the internal loans are as high as 10 and 12 per cent per annum. The internal floating debt of the Republic, as of June, 1915, was stated as follows: Originally issued, \$15,460,516 gold; redeemed, \$10,246,789 gold; balance outstanding, \$5,169,771 gold. This internal floating debt is largely in the form of railway drafts, some of which were

issued for construction costs; the remainder of the debt consists of Treasury certificates, certificates of war, Treasury bills, highway bonds, etc.

MUNICIPAL LOANS.

In the year 1916 the municipality of Bogota contracted a loan with the American International Corporation, of New York, for \$5,000,000, the proceeds to be used largely to carry out public works. Later in the same year Medellin arranged for a loan of \$400,000 at 10 per cent, with 1 per cent per annum extra in lottery drawings. A large portion of this loan, also for public works, was locally subscribed, and it is said that some of it was taken by New York banking interests. A few other municipalities have contracted small loans to construct waterworks and make general improvements. These loans usually carry high interest rates, a fact occasioned by the generally high money rates, which vary from 12 to 24 per cent per annum. A number of the cities and towns of Colombia are contemplating making sanitary improvements, laying out water-supply systems, and installing or improving electric-lighting plants. Most of these projects await the end of the European war.

BANKS.

The development of banks and banking in Colombia has of necessity been rather restricted. Bogota has naturally taken first place among the banking centers, it being the capital and largest city. The four banks of Bogota, with their capitalization (expressed in United States currency), are the following: Banco de Bogota, \$250,000; Banco Central, \$2,300,000; Banco de Colombia, \$780,000; Banco Hipotecario, \$500,000. The total deposits of these four banks in 1916 amounted to nearly \$6,000,000. At the beginning of 1915 the financial standing of the banks was as follows (figures are in United States currency):

Banks.	Capital and reserves.	Deposits.	Profits, six months.	Mortgage certificates.
Banco de Bogota.....	\$350,000	\$1,520,018	\$32,500	None.
Banco Central.....	2,643,000	706,000	79,600	\$1,040,000
Banco de Colombia.....	812,750	2,638,000	32,750	442,000
Banco Hipotecario.....	549,100	393,690	60,200	943,000

Among other banks of more or less importance in the Republic may be mentioned the Banco Comercial de Barranquilla, at Barranquilla; the Banco Alemán-Antioqueño and the Banco de Sucre, at Medellin; the Banco Comercial, at Cali; and the Banco de Bolivar and the Banco Unión, at Cartagena.

RAILWAY DEVELOPMENT.

There are within the Republic of Colombia to-day not more than 700 miles of operated railway—16 railways existing, the longest of which is only 149 miles. There is not a single "trunk line" in the

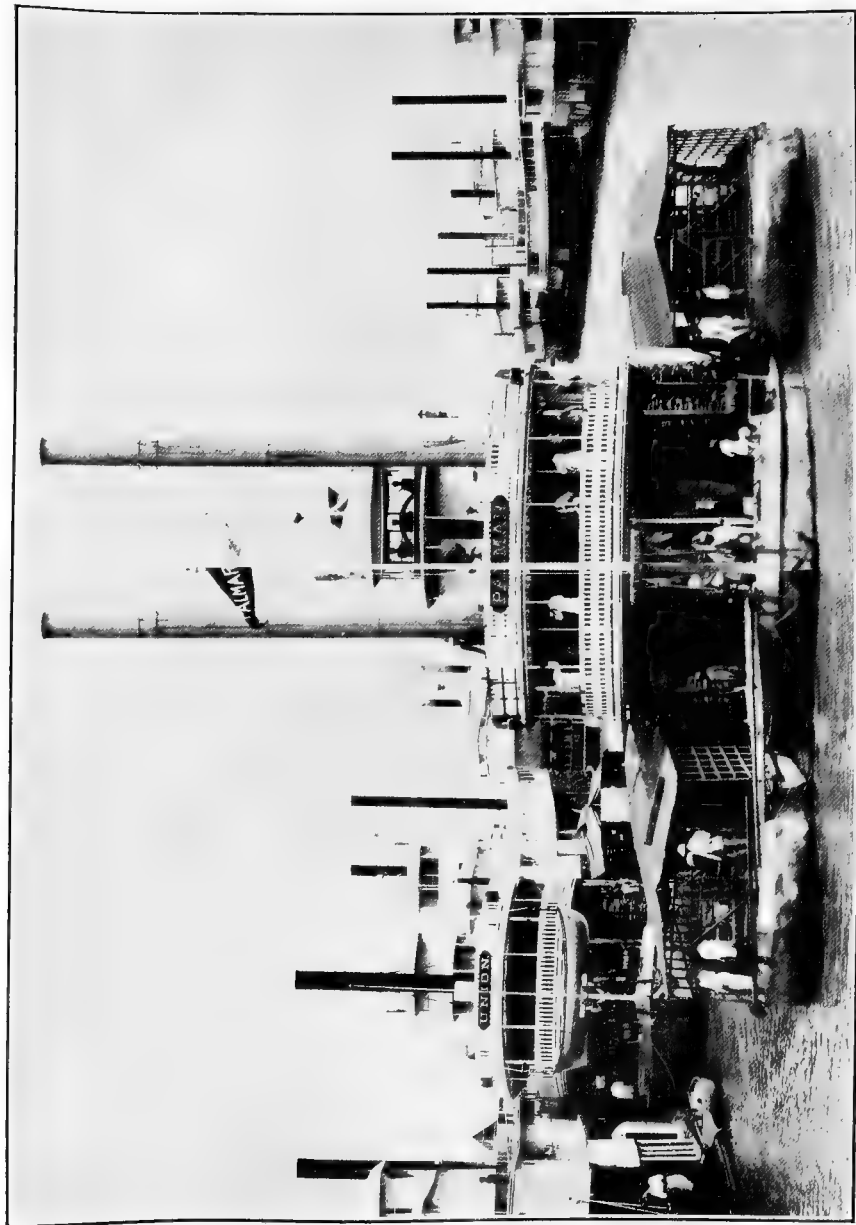


FIG. 16.—STEAMERS ON MAGDALENA RIVER, REPUBLIC OF COLOMBIA.



FIG. 17.—RAILWAY CONSTRUCTION IN COLOMBIA: "EL GOBIERNO" FILL ON AMAGA LINE.

Republic and the various existing systems simply act as connections between various centers of population and some river or sea port of outlet, or else form means of routing traffic around rapids or river bars.

The principal railways of Colombia, with their approximate operated mileage, are:

	Miles operated (estimated).
Amaga Railway -----	23
Antioquia (Puerto Berrio) Railway -----	108
Barranquilla Railway -----	17
Cartagena Railway (Colombia Railway & Navigation Co.) -----	65
Cucuta Railway -----	45
Dorada Extension Railway -----	71
Colombian National (Girardot) Railway -----	86
Pacific (Cauca) Railway -----	149
Great Northern Central Railway -----	12
Colombian Northern Railway -----	39
Sabana Railway -----	25
Santa Marta Railway -----	99
Colombian Southern Railway -----	21
Tachira Railway -----	10
Tolima Railway -----	75

The Amaga Railway is a local enterprise, financed and constructed by Colombians. The line is to be carried eventually from Medellin to the River Cauca. Plans were laid to link up the railway with the Antioquia Railway, running from Puerto Berrio on the Magdalena River. The authorized capitalization of this company was fixed at \$1,000,000 Colombian gold.

ANTIOQUIA RAILWAY.

The Antioquia Railway is the oldest line in Colombia, its charter dating as far back as 1874. The terminus of the railway is at Puerto Berrio on the Magdalena River, and the line is being carried by slow stages toward Medellin. The railway seems to have about as good prospects as any in Colombia, and its earnings (\$590,278 in 1913) are at present larger than the earnings of the various other lines in the country. At the outbreak of the European war construction work was temporarily suspended, the amount expended on the line up to that time having been in excess of \$3,000,000 United States currency (the cost of the 102 kilometers—63 miles—from Puerto Berrio to Sofia totaled \$2,978,037). The work has been carried on almost entirely out of surplus profits from operations, although on several occasions unsuccessful efforts have been made to obtain loans abroad.

Puerto Berrio, the terminus of the line, lies at an altitude of approximately 400 feet above the sea. The railway from that point follows the course of the Malena River, the route being low and swampy, this necessitating a considerable amount of bridging and filling in. From the head of this little river the line climbs across a ridge into the valley of the Nus, the heaviest grade encountered being 4.5 per cent. The Nus River is reached at Pavis, about 48 kilometers (30 miles) from Puerto Berrio, the cost of the 48 kilometers being estimated at \$1,616,800 gold. From this point numerous engineering difficulties—really colossal, at times—have had to be overcome very slowly, owing to the scarcity of funds. A tunnel of considerable size yet remains to be completed.

BARRANQUILLA RAILWAY & PIER CO.

The line operated by the Barranquilla Railway & Pier Co., a British corporation, is 18 miles in length and extends from Puerto Colombia on the Caribbean Sea to Barranquilla, the principal port for the Magdalena River, the mouth of which is not navigable on account of obstructions.

The Republic of Colombia had the right to purchase the property at a fair valuation in 1913, but did not exercise that right. In 1923 the Government may purchase the property "at a fair valuation less 20 per cent" and in 1933 "at a fair valuation less 40 per cent." The capitalization of the company consists of £250,000 shares, par £10, of which £50,000 was given as a bonus in 1913. There is also outstanding £100,000 6 per cent first debenture stock, principal repayable at 110 at the option of the company on six months' notice. This debenture stock was quoted in January, 1918, at 94. The dividend payments on the stock during recent years have been at the following rates: 1908-9, 2½ per cent; 1909-10, 3 per cent; 1910-11, 4 per cent; 1911-12, 5 per cent; 1912-13, 5 per cent cash and a bonus of 25 per cent in stock; 1913-14 to 1916, 5 per cent per annum; 1917, 6 per cent. The annual receipts of the company at present exceed £75,000. The gross earnings for 1914, as expressed in Colombian currency, totaled \$35,678,876.

COLOMBIA RAILWAY & NAVIGATION CO.

The Colombia Railway & Navigation Co. is the successor of the Cartagena Railway and operates a 65-mile line of railway from Cartagena, a port on the Caribbean Sea, to Calamar, on the Magdalena River. The capitalization of this company consists of the following securities:

Ordinary stock, par £1, £750,000. No dividends are being paid, and the price of the shares (January, 1918) is approximately 9d.

Navigation debentures, 6 per cent. Secured on steamboats and other property. Interest regularly paid, through 1916. Quotation January, 1918, 43 per cent.

Railway debentures, 5 per cent. Interest on these debentures is to be paid March 30 and September 31, dependent on profits up to 2 per cent per annum after payments on the Navigation 6 per cent bonds and 3 per cent after provision has been made for a renewal and repair fund of £5,000 and the Navigation bond redemption fund of £6,399 per annum, when it comes into operation in 1918. On two occasions during the past five years part of the interest was paid in cash; on other occasions the interest payments were made wholly in deferred interest warrants, to be redeemed out of profits. The bonds were quoted in January, 1918, at about 11 per cent of par.

Gross earnings for 1915-16 amounted to £233,076, as compared with £243,722 in 1914-15 and £333,944 in 1912-13. The securities are listed on the London Stock Exchange.

CUCUTA RAILWAY.

The Cucuta Railway was originally incorporated in 1866 to build a road for wagon traffic through the valley of Cucuta to Villamizar, a port on the River Zulia. Some years later a railroad was laid out

by the company along the route previously selected as a road, the approximate present length being 45 miles. The line forms an outlet for traffic originating in the Department of Santander, affording connections with steamers running down the Zulia River to Lake Maracaibo, Venezuela.

The capitalization of the Cucuta Railway is \$1,800,000 stock and an original issue of £120,000 6 per cent debentures, secured by a first mortgage on the property and originally issued in London at 95 per cent in 1887. Most of these debentures have been retired through a sinking fund of $2\frac{1}{2}$ per cent per annum, cumulative, and the quotation in January, 1918, was 96 per cent. Dividends on the stock during recent years have been as follows: 1909, $1\frac{1}{4}$ per cent; 1910, 3 per cent; 1911, $3\frac{1}{4}$ per cent; 1912, $4\frac{1}{2}$ per cent; 1913, $5\frac{1}{4}$ per cent; 1914 and 1915, $2\frac{1}{2}$ per cent; 1916, 3 per cent. Most of the stock is held in Colombia.

DORADA EXTENSION RAILWAY—DORADA ROPEWAY EXTENSION.

The Dorada Extension Railway, 71 miles, forms a means of transportation around rapids in the Magdalena River and is thus a part of the route necessary in journeying from the Caribbean Sea to Bogota. The Government may purchase the line in 1961 at a fair valuation, this privilege extending until 1985; from 1985 to 2009 the cost price is to be one-half the valuation, and in 2010, if not previously acquired, the line reverts to the Government. The railway is of 3-foot gauge and carries a Government subsidy. The terminals are La Dorada and Ambalema.

The capitalization of this company is as follows:

Securities.	Amount.	High price since 1910.	Price January, 1918.
Stock, par £10.....	£350,000	£7 $\frac{1}{2}$	£4
First debenture stock.....	336,000	103	90
Second debenture stock.....	a 90,200		

a Total authorized issue, £200,000; issued to acquire majority interest in the shares of the Dorada Ropeway Extension (Ltd.).

Dividend payments during recent years have been at the following rates: 1911, $2\frac{1}{2}$ per cent; 1912 and 1913, 4 per cent each; 1914, 1915, and 1916, 3 per cent each. Gross revenue for 1917 totaled £106,949 (an increase of £7,207); net revenue, £61,384; other income, £2,602; total income, £63,983; brought forward, £1,197; surplus after charges, £29,832. The dividend for the year was 4 per cent, and £15,000 was added to reserve.

The Dorada Ropeway Extension (Ltd.) operates an aerial ropeway line from Marquita, a station on the Dorada Extension Railway, to Manizales. A large portion of the line has been completed. The capitalization is £220,000 £5 shares of an authorized issue of £250,000 shares, a majority of which are held by the Dorada Extension Railway. The gross receipts for 1915 were £7,530 and the operating expenses £5,500. During 1916 gross receipts increased to approximately £25,000, and there was a substantial net increase. This company was incorporated in 1912.

COLOMBIAN NATIONAL (OR GIRARDOT) RAILWAY.

The Colombian National (or Girardot) Railway extends from the port of Girardot, on the Magdalena River, to Facatativa, the junction with the Sabana Railway, running to Bogota, the capital. The gauges of the two lines are different (Colombian National Railway, 3 feet; Sabana Railway, 1 meter) and this necessitates a change of cars. The railway has not been greatly successful financially, and the shares have only a nominal market value. The bondholders a few years ago were offered Colombian Government bonds in exchange for their railway bonds (the terms of this exchange of securities will be found in the section of this chapter devoted to Government securities).

Of the £900,000 £1 shares, £300,000 were originally issued to the Government. No dividends have been paid. The £200,000 first mortgage debentures were originally issued in 1889 and are secured by a first charge on the company's railways and lands. Prior to the close of 1916 £191,760 had been acquired by the Government in exchange for Government bonds. The £400,000 6 per cent second mortgage debentures have all (except £5,500) been exchanged for Government securities. The interest on the second mortgage railway bonds has been in arrears since 1909.

In addition to the two issues of debentures mentioned in the preceding paragraph, there are two so-called issues of customs-guaranteed bonds secured, respectively, by third and fourth mortgages on the property. These issues total £430,000 and £450,000 and were issued in 1907 and 1908, respectively. Approximately £311,120 third debentures and £316,140 fourth debentures are held by the Government, having been exchanged for Government bonds. Interest is being paid on two issues of railway obligations, which are secured by customhouse receipts of the Republic.

The Government of Colombia has advanced to the Colombian National Railway the sum of £549,238, which is carried as a capital liability by the railway company. Gross earnings of the railway for the calendar year 1910 were £61,643; for 1911, £76,435; for 1912, £100,035; for 1913, £127,311; for 1914, £123,194; for 1915, £126,802; and for 1916, approximately £140,000. Large deficits have usually resulted after fixed charges were met. The mileage operated totals 86.

PACIFIC RAILWAY.

The Pacific Railway (Compañía del Ferrocarril de Pacifico) was authorized under the laws of Colombia to build a line from the port of Buenaventura, on the Pacific Ocean, into the Cauca Valley, thence to be continued to Bogota, 362 miles from the Pacific. Thus far approximately 238 kilometers (148 miles) of the line have been completed, or practically completed, as follows: Buenaventura to Cali, 174 kilometers (108 miles); Cali to Popayan, 34 kilometers (21 miles); Cali to Palmira, 26 kilometers (16 miles). The Palmira extension is to be carried northward to Ruga, Tuluma, and Cartago.

In 1911 there were offered in behalf of the railway company in London £119,200 5 per cent sterling five-year bonds at 93 per cent. This issue has since been liquidated.

The share capitalization of the company at the time of incorporation in 1908 was fixed at £280,000, divided into 14,000 shares of £20 each. The founders subscribed for 10,710 shares, the Banco Central, of Bogota, taking 5,600; 2,000 were offered to the public; and the rest were held for future use. It is said that interests identified with the United Fruit Co. have important stock holdings in the company. The equipment in service is mostly of American manufacture.

The Cartago section of the Pacific Railway is to be carried, if plans fully materialize, through the Quindio Valley and across the Central Cordillera through the Calarua depression, descending to Ibagué, the capital of the Department of Tolima, where connections will be made with the Tolima Railway (see a subsequent paragraph), now nearing completion.

COLOMBIAN NORTHERN RAILWAY.

The Colombian Northern Railway, which operates about 39 miles of line, extends from Bogota to Zipaquirá, from which point it is expected that extensions will be built so that a trunk line may be formed between Bogota and the Magdalena River. The capitalization of the company consists of 300,000 shares of £10 and approximately £180,000 5 per cent first-mortgage debentures. These debentures were quoted at 79 per cent in January, 1918, and the shares at £4 12s. 6d. Dividend payments on the shares have been as follows: 1906-7, 2 per cent; 1907-8 to 1909-10, 2½ per cent each; 1910-11, 2 per cent; 1911-12, 3 per cent; 1912-13 to date, 4 per cent.

SABANA RAILWAY.

The Sabana Railway is under Government control and forms part of the through route between the Magdalena River and Bogota. The Government issued in 1906 £300,000 bonds secured by a mortgage on this property. The line is 25 miles in length and is of a different gauge from the Colombian National (Girardot) Railway, with which it connects at Facatativa, but has the same gauge (1 meter) as the other short railways entering Bogota.

TOLIMA RAILWAY—COLOMBIAN SOUTHERN RAILWAY.

The Tolima Railway, which, when completed, will be 160 kilometers (99 miles) in length, is to extend from the Magdalena River, at Girardot, to Ibagué, where connections will be made with the Cauca, or Pacific Railway, now building. The Tolima Railway has been nearly completed, and the whole line is expected to be in operation by the spring of 1918. When it is connected with the Cauca Railway a through route will be opened between Bogota and the Pacific port of Buenaventura, and a part at least of the through traffic to and from the interior will doubtless be routed this way.

The Colombian Southern Railway serves a local territory, which has considerable agricultural wealth. The line is the property of the Colombian Government.

SANTA MARTA RAILWAY.

The Santa Marta Railway, 99 miles in length, has its terminus at the Caribbean port of Santa Marta, where quays and other prop-

erties are owned. The line extends into a territory extensively cultivated with bananas and, it is expected, will be eventually carried to the Magdalena River, 138 miles from the sea. The railway is the property of a British company, incorporated in 1887. The company has acquired, as a subsidy from the Government, 100,000 hectares (247,104 acres) of uncultivated land.

The capitalization of the Santa Marta Railway consists of £159,170 7 per cent and participating preference shares, £200,000 ordinary shares, and approximately £175,000 6 per cent debentures. No dividends have been paid on either class of stock, although interest has been regularly met on the debentures. These debentures sell on the London Stock Exchange, the price recorded in January, 1918, having been 90 per cent. The net profits for 1912, 1913, and 1914 were £17,413, £19,690, and £20,907, respectively. The credit balance of net revenue account as of September 30, 1915, amounted to £15,115, as compared with £24,778 as of September 30, 1914. The percentage of working expenses to gross earnings in 1914 was 86.47, as compared with 85.99 in 1913 and 82.81 in 1912. The gross receipts amounted to approximately £151,500 in 1914, but in 1915 and 1916 the figures were lower.

The United Fruit Co. owns 11.65 miles of railway and 11.64 miles of tramways in Colombia, the value of these as carried on the company's books being \$66,858.

DISCUSSION OF COMPREHENSIVE PROGRAM FOR RAILWAY DEVELOPMENT.

At the Pan American Financial Conference held in Washington during 1915 there was a discussion as to the feasibility of constructing a railway line from Barranquilla, running parallel with the Magdalena River to Girardot or some other point within rail connection of Bogota and the various cities of upper Colombia. Feeders were to be constructed or existing lines enlarged so that all the principal centers of population were to be placed in touch with the main line of the proposed railway. Lines were also to be constructed to the regions of the east, including 1,200 miles of road to reach the great plains of the Amazon. This railway construction would cost, on the average, \$50,000 per mile. Long-delayed plans would be put into operation whereby the mouth of the Magdalena River would be dredged, so that ocean-going steamers might proceed up the river to Barranquilla.

The Colombian law, it was stated at the conference, authorizes the Government to subsidize railway construction up to \$16,000 per mile, and it grants up to 300 hectares (741 acres) of public lands per mile of railway constructed, to be located on either side of the line.

The law grants to the constructors of the railways the privilege of usufruct of the railway up to 50 years, after the expiration of which period it can be continued for 25 years more, but the Government may during the last period buy the railway from the concessionaires at an arbitrated price.

Although there seems but little prospect that such a scheme as that mentioned will be carried into immediate effect, owing to the high cost of materials and to various other reasons, the need of a comprehensive railway program leading to the development of the great potential wealth of the Republic is evident. The proposed

upper Magdalena River to Quito, Ecuador, section of the so-called Pan American system, long discussed, will probably not be constructed at present. The territory is thinly settled, and while there is undoubtedly a considerable amount of undeveloped wealth along the proposed railway route, the construction costs would probably prove too heavy a burden to allow any profit to the builders.

PUBLIC UTILITIES.

Public-utility development in Colombia has not attained importance. There are in the Republic five electric light and power plants and properties, representing an investment of \$1,086,000. There are tramways, operated by electricity, steam, or otherwise, in Bogota, Barranquilla, Cali, Cucuta, Cartagena, and Medellin. The telephone service in Bogota is furnished by a British company, the Bogota Telephone Co. (Ltd.), registered in 1900, which has a concession lasting until 1952. This company is capitalized with £18,200 preferred stock and £18,607 deferred stock, the preferred stock being entitled to 99 per cent of the profits. The preferred stock received an initial dividend of 6 per cent in 1912-13, while 10 per cent was paid in 1913-14, 12½ per cent in 1914-15, and 16 per cent in 1915-16. The company formerly had debentures outstanding, but these were redeemed in 1912. After the dividend payment from the profits of 1915-16, the sum of £1,790 was carried forward.

The street railway line in Bogota, which is operated by the municipality, carried 4,566,892 passengers during 1913, as compared with 3,887,373 during 1912. The gross earnings from operations for 1913 totaled \$230,916, operating expenses were \$108,134, and net earnings were \$122,782. The net car-mile revenue during 1913 amounted to \$2,026, as compared with \$1,823 in 1912.

MINING ENTERPRISES.

Almost every known variety of commercially important minerals exists in the Republic of Colombia, and a future of considerable promise is in store for the mining industry, once better means of communication are established. Numerous mines and various mining areas are practically inaccessible owing to lack of railways and roads. Large British interests and some American and German concerns have obtained concessions to mine gold and platinum. At the close of 1915 the number of known mines in five important Departments (States) of Colombia was 18,386—12,181 in the Department of Antioquia, 2,452 in the Department of Narino, 2,610 in the Department of Caldas, 641 in the Department of El Valle, and 502 in the Department of Tolima. In addition, minerals (including gold) are to be found in the Department of Bolivar, in the Choco Intendency, and elsewhere.

The production of copper in Colombia antedates even the Spanish Conquest, but is not to-day an important industry. During the period of Spanish control a considerable amount of the ore was mined in a primitive way, being obtained principally from rich oxidized ores along or near the surface. Old copper mines are found in the Departments of Antioquia, Boyaca, and Tolima, the mines in Boyaca being worked in a small way. The mineral is also known to exist in the Departments of Bolivar, Cauca, Cundinamarca, Santander,

and elsewhere. In the Department of the Cauca the principal deposits are at San Lorenzo, Cali, Pichinche, and Andagueda. The general development of the industry in that Department and elsewhere awaits better transportation facilities.

COMPANIES ENGAGED IN GOLD MINING.

Gold is the most important mineral produced; the exports of gold bars in 1915 amounted to \$3,580,108, of gold dust to \$1,126,904, and of gold coins to \$415,212. The Breitung Mines Co., of Delaware, with a capitalization of \$1,527,590, acquired some time ago the property of the Marquette Magdalena Co. The mines were not operated, however, during 1916, and no dividends are being paid. The Compañía Minera de Zancudo, with office at Medellin, operates the Zancudo, Chorres, Cateador, and Muriel gold and silver mines and works a small smelter at Sitio-Viejo. The ores, as stated, are principally gold and silver, with a small amount of copper as a by-product.

Great Britain has successfully entered the gold-mining field in Colombia, and the results of several of the more important British-controlled mines will be found in the Appendix (see p. 517). The most important of these British mines are the Pato Mines, the Nechi Mines, the Frontino & Bolivia Mines, etc. The Pato Mines cover an area of about 40,000 acres located near Zaragoza, Department of Antioquia. The company's capitalization consists of £100,000 shares and approximately £212,000 8 per cent income notes. A dredge is being operated, and the property holds considerable promise. It is controlled by the Oroville Dredging Co., through ownership of £70,000 of a total of £100,000 stock. The latter company also controls the Nechi Mines, through ownership of the £70,000 ordinary stock. The preference shares of the latter company, £70,000 outstanding, are entitled to and are receiving 25 per cent per annum and are further entitled to one-half of the surplus profits. During the 10 months ended June 30, 1916, the yield of gold was valued at \$525,130.

The Frontino & Bolivia property was registered in Great Britain during 1911 as the successor to a company of similar name, incorporated in 1886 to acquire the original Frontino & Bolivia Co., which began operations in 1864. The company owns mines, covering about 5,000 acres, located near Medellin, its capitalization consisting of £45,538 10 per cent debenture stock due 1921, £23,390 10 per cent and participating preference shares, and £140,000 ordinary shares of £1 each, of which 14s. has been paid in. Dividends of 10 per cent per annum were paid on the preference shares during 1913-14 and 1914-15, and a dividend of 10 per cent was paid on the ordinary shares during 1914-15. The dividend rate on both classes of stock has been since increased. The yield of gold during 1912-13 amounted to £86,972; 1913-14, £88,311; 1914-15, £115,628; 1915-16, £115,469.

The Tolima Mining Co., another British corporation, owns gold and silver properties in Colombia, including the Frias Silver Mines and water-power rights at Tolima. The authorized capitalization of this company is £100,000, par £1, of which 17s. has been paid in. Dividends were regularly maintained on the stock until 1914; there have been none since.

The New Timbiqui Gold Mines (Ltd.) owns gold placer claims in the Timbiqui River, the properties covering rights on about 865 square kilometers (334 square miles) of territory. The capitalization of the company is £200,000, par £1, and during 1915 a dividend of 5 per cent was paid on the stock. In 1913 the gold production was valued at £38,750 and in 1914 at £33,380. Operations were begun in 1907.

The Colombian Mines Corporation (Ltd.), also a British company, acquired gold mines in the Remedios district. This company began business in 1883; and during its early years paid substantial dividends. The company's leases of two properties, the Sucre and the Providencia, expired in 1913 and, on account of conditions brought about by the war, it was deemed wise to lease the Sucre property to other interests temporarily. The capitalization of this company is £26,204, of which £11,204 is classed as "A" stock and £15,000 as "B" stock.

The Colombian Mining & Exploration Co. was registered in London in 1908, to acquire gold and silver properties in the districts of Supio and Marmeto and in the municipalities of Apia, San Clemente, Ansermaviejo, Sucio, Rio Sucio, Nazaret, and Marmeto. The principal property was known as the Marmeto Hill mine, and considerable development work has been carried on there. The capitalization consists of £50,000 6 per cent debentures and £450,000 stock. A receiver was appointed in 1915 on behalf of the debenture holders. A new reduction plant of considerable size has been placed in operation.

The Palenque Gold Mining Syndicate, formed in 1898, acquired a hydraulic property located at Palenque, Department of Hondo. This property in 1909 was leased to another company for 10 years in consideration of 25 per cent of the profits. The capitalization of the company consists of £20,000 priority and £50,000 ordinary shares, par £1. Dividends of 8d. and 4½d., respectively, were paid on the two classes of stock both in 1905 and 1906, but none have been paid since.

The Platinum & Gold Concessions of Colombia (Ltd.), a Belgian company, capitalized at £86,573 (£150,000 authorized), has acquired alluvial platinum and gold properties known as the Bajo Opogado, located not far from Novita, Colombia. The property is about 15 kilometers (9.32 miles) in length by 2 kilometers (1.24 miles) in width. Information concerning earnings is not available.

A French company known as the San Antonio Gold Mines Co. (Ltd.), registered in 1912, has acquired a gold mine concession near Cali, Department of Valle. The capitalization of the company at the time of formation was £70,607. The results from its operations are not available.

The list of gold-mining companies given in the preceding paragraphs is by no means complete, there being other mines in operation in which local, American, and European capital is interested. The estimated gold production of Colombia since the Spanish conquest has exceeded \$600,000,000. During the same period probably \$30,000,000 worth of silver has been produced.

EMERALD MINING.

The emerald-mining industry in Colombia dates its origin long before the conquistadores of Spain turned their eyes toward the

Western World. When Bogota was first settled in 1534 the Spaniards made every effort to discover the location of the emerald deposits which were known to exist not many miles from the settlement. Their endeavors were long frustrated by the opposition of the powerful Indian tribes of the district. Finally, however, in 1594 mining operations were begun, the work being carried on wholly by Indian slaves. Great treasures were taken from the district during the Colonial period, a very large portion of the revenues going to the Spanish Crown.

A number of mines were worked by private interests during the first 30 years of the Republic, and fair results were obtained. In 1848 the Colombia Congress decided that thereafter all emerald mining would be carried on under the supervision and for the benefit of the Government, profits to go into the national treasury. This state of affairs continued until 1908-9, when a British company obtained a concession to develop an extensive area. The company was provided with a fair amount of capital and carried on considerable development work, but without much success. The enterprise struggled along until 1914, when it was deemed advisable to wind up the company's affairs. The mines were taken over by the Government under judgment for £250,000 (\$1,216,625), and the shareholders received back a portion of their investment. Since the outbreak of the war in Europe and the consequent cutting off of the principal market for the gems, operations have been confined by the Government to the maintenance of the property.

Information at hand is of too vague a character to make possible the expression of any opinion concerning the advisability of an American company taking over the property. Nothing should be done without thorough investigation and ample capital. The latter is particularly necessary owing to the fact that exhaustive searches, necessitating much unproductive labor, must be made in order to discover productive formations. Furthermore, the mines are difficult of access, being three or four days' journey by mule back from the nearest railway. The emeralds are then sent through Bogota over the long and expensive rail and water routes to the world's markets.

Colombia is the chief emerald-producing country, the output in a normal year amounting to about 800,000 carats. That the industry is likely to long continue a source of wealth to the Republic is indicated by the fact that, in addition to the field already developed, two new deposits have been located. However, these deposits (at Cosquez and Somondoco) are at present inaccessible owing to transportation difficulties. At least one of the latter emerald fields is as rich as the Muzo deposit now being worked.

PLATINUM.

Platinum mining has assumed great importance in Colombia. The platinum is found, usually in conjunction with gold, in the Atrato, Condoto, Platina, and San Juan Rivers and elsewhere in the Republic. The principal platinum-bearing zone is about 90 by 30 miles in area, and is one of the richest platinum deposits in the world. The production of this mineral has increased from 245 troy ounces to 11,046 troy ounces, valued at \$494,888, in 1915 (in 1912 \$594,188

worth was exported). An American company with a capitalization of \$750,000 was formed late in 1915 to mine the platinum. In 1911 the Anglo-Colombian Development Co. (Ltd.), controlled in the interest of the large and important Consolidated Gold Fields of South Africa (Ltd.), a British company, was formed with a capitalization of £250,000 to acquire certain platinum-bearing lands in the Intendency of the Choco. Large sums have been expended in dredging operations.

IRON.

Iron ore has been found in what promises to be large quantities in the Department of Cundinamarca, in which Bogota is situated. Other deposits of ore have been located, but these are mostly inaccessible owing to the inadequate means of transportation.

COAL.

Coal was first discovered in Colombia in the year 1882, the outcrop occurring in the bed of the Aracataca River, which flows into Santa Marta Bay. Numerous other deposits of coal have since been found, a large quantity existing in the neighborhood of Cali. Some of the deposits are being worked in a rather crude way and produce sufficient fuel for the needs of the country. It is said that sufficient coal might readily be mined to take care of the needs not only of Colombia but of Ecuador, Venezuela, Panama, and other near-by countries.

SALT.

There are salt deposits at Nemocon, Zipaquira, Sesquile, and Tausa in the Department of Cundinamarca. The product of the mines in 1912 was valued at \$810,679. The Zipaquira mine, which is probably the most important salt property, has returned to the Government a revenue of \$21,928,147 during the period 1883 to 1912. Salt mining is a Government monopoly.

ASPHALT.

Asphalt deposits have been located in the upper Magdalena River district, and some small shipments have been made from Santander. Other products of the mine are quicksilver, magnesia, marble, alum, chalk, lead, sulphur, and lime.

PETROLEUM.

Oil has been found in the Republic, and concessions have been granted to several companies to exploit the field. One American company expended approximately \$750,000 in an unsuccessful effort to produce oil in paying quantities in the Sinu district; another American company secured concessions in the Bolivar district, along the Caribbean coast, and also at places on the Magdalena River. Oil is also known to exist in the eastern section of Colombia, adjacent to the various rivers that empty into the Orinoco and Amazon. This petroleum, it is said, may be seen running over the surface of the rivers.

The following account of the oil fields of Colombia is from a paper on "Petroleum Resources of South America," by Frederick G. Clapp, S. G.:

The prospective oil fields of Colombia are grouped by Ralph Arnold into Caribbean, Pacific, Magdalena-Santander, and Tolima districts. Their total area is estimated by him as 34,000 square miles (88,060 square kilometers) and their probable petroleum territory only 618 square miles. Only 2 square miles are stated as now proven. According to the writer's classification, the fields will be grouped as follows:

- A. Caribbean district.
 - 1. Caribbean field.
 - (a) Tubura pool.
 - (b) Turbaco pool.
 - 2. Magdalena-Santander field.
 - 3. Tolima field.
- B. Pacific district.

A. CARIBBEAN DISTRICT.

1. *Caribbean field*.—The Caribbean field is supposed to extend from Rio Hacha, on the western edge of the Goajira Peninsula, southwestward along the Caribbean coast to the Gulf of Darien and Gulf of Uraba, "and inland to include the Tubura and Turbaco pools and the region as far south as 30 miles (48 kilometers) south of Chima, on Sinu River, and Monpos, on San Jorge River, and up the Arato River valley for 90 miles from Punta Arena. It occupies portions of the Departments of Magdalena, Bolivar, and Cauca." It is approximately 300 miles (482 kilometers) long and 50 miles wide, contains 15,000 square miles (38,850 square kilometers), and has 300 square miles of probable productive territory, of which only 1 square mile has been proven by drilling.

The known pools in the Caribbean field are named (1) Tubura and (2) Turbaco. The Standard Oil Co. of New York did some drilling in the Sinu Valley, near Lorica.

Tubura pool.—This pool is 20 miles east of Cartagena and quite close to Barranquilla. A Canadian company has drilled three wells from 699 to 3,018 feet deep (213 to 919.88 meters), at least one of which yielded 7 or 8 barrels of oil daily. Colombia seems to be the only South American country in which natural gas is known in large quantity, and its principal supply is in the Tubura pool. A plan has been suggested to pipe the gas to the city of Barranquilla for use in lighting, cooking, and generating power.

Turbaco pool.—This field is 12 to 15 miles south of Cartagena. Diego Martinez & Co., in association with the Standard Oil Co. of New York, drilled five wells 500 to 2,200 feet deep. Diego Martinez & Co. also own a small refinery in Cartagena, where imported oil is refined.

2. *Magdalena-Santander field*.—The Magdalena-Santander field, "probably as important, but more inaccessible and less well known than that along the Caribbean coast, includes the southern part of the Department of Magdalena, the Department of Santander, and the western edge of the Department of Boyaca, extending from the Magdalena River to the eastern Cordilleras. It also occupies an area in the southeastern part of the Department of Bolivar." It covers a belt about 200 miles (321 kilometers) long and 50 miles wide, having an area of 10,000 square miles (25,900 square kilometers), of which only 200 are believed to be productive, while only 1 square mile has been proven. A small refinery, which handles the product of a few wells for local trade, is situated at Pamplona.

3. *Tolima field*.—Under the Tolima field are grouped the petroliferous occurrences in the upper Magdalena basin, in the Departments of Cundinamarca and Tolima, and on the edge of the San Martin and Casanare plains. While this district has an area of 7,000 square miles, only 100 are believed to be productive, and none have yet been definitely proved.

B. PACIFIC DISTRICT.

The Pacific district in the Department of Cauca, as defined by Arnold, includes a belt 60 or 70 miles (96 to 112 kilometers) long, extending along the Pacific coast north of Buenaventura to Baudo River, reaching inland to Atrato

River at Quibdo and as far south as Cali on Cauca River. The area of the Pacific district is given as 1,800 square miles, of which the probable productive territory is considered as only 18, none being yet proven.

CONDITIONS GOVERNING EXPLOITATION.

The oil fields of Colombia have long drawn some attention from outside capitalists, who have realized, in a vague way, that oil exists there. Unfortunately, the explorations have resulted in little success, owing, perhaps, to three main causes:

(a) The explorations of large oil companies have, until recently, been mainly in a comparatively few localities near the coast and adjacent to certain main rivers.

(b) It has not been realized in all cases that geologic conditions, while fundamentally similar, present many unusual phases in every country examined, and that these discrepancies must be taken into account before condemning a district as unfavorable.

(c) Much of the country is an almost impenetrable jungle, through which well-drilling machinery can be transported only at great expense.

The production of Colombian petroleum has, as yet, not really commenced. In the Magdalena-Santander field the wells are shallow and the production small, although of good promise. In the Caribbean field only ten wells are known, the production of which is given by Arnold as less than 10 barrels per well per day. There is no reason, however, in the opinion of the present writer, to suppose that the Colombian fields will ultimately prove to be less valuable than those of Peru.

SUMMARY OF POSSIBILITIES.

As has been indicated, the possibilities in the mining field, particularly in placer mining, seem very promising, although transportation difficulties and, in certain sections, insalubrity of climate have greatly retarded development work. Lode mining is even more difficult to carry on, inasmuch as most mines are not easily accessible and the cost of transporting machinery is excessive.

AGRICULTURE AND STOCK RAISING.

Perhaps one-third of the total area of Colombia is capable of more or less successful development along agricultural lines. Coffee, bananas, tobacco, and other products may be grown readily, and almost every known variety of cereals, fruits, and vegetables exists. Bananas form a very important export, the United Fruit Co. having invested \$2,849,498 in lands, plantations, etc., in the Republic. This American company owned on September 30, 1916, 26,253 acres of improved land (27,917 acres in 1915) and 56,301 acres of unimproved land. About 16,233 acres of land are under cultivation for bananas and 9,779 are used as pasture land, the company owning in Colombia 2,866 head of cattle and 290 other animals.

About 6,000,000 bunches of bananas are exported annually through the port of Santa Marta alone, practically all of the fruit going to the United States. Large shipments are also made through the port of Cartagena. Banana exports have reached a total of \$3,000,000 per annum during certain years, the average exports, 1911 to 1915, exceeding \$2,500,000 per annum.

Coffee is the Republic's leading product, more than 149,000,000 pounds having been exported during 1915. The value of the 1916 exports was \$15,996,032, as compared with \$16,247,672 in 1915, \$16,098,185 in 1914, and \$18,369,768 in 1913. The coffee exported rep-

resents approximately 95 per cent of the total annual crop. The principal coffee districts are in the Department of Cundinamarca, in which there have been planted about 30,000,000 trees out of a total of slightly more than 80,000,000 trees in the entire Republic. The coffee of Cundinamarca is generally known commercially as "Bogota" coffee. Other important coffee districts are in the Departments of Santander, Tolima, and elsewhere.

A fair amount of sugar and cotton is raised for local consumption, and rubber and tobacco are being exported, although not in considerable quantities. The untouched areas of rubber trees are large, but the rubber industry is subject to prevailing general conditions. The tonka bean, used as a substitute for vanilla, is also found in the forests.

Colombia has vast areas of natural pasturage, some of which are used to-day for stock raising while others are awaiting future utilization. There are said to be about 7,000,000 cattle in the Republic. The exportation of cattle hides has become third in importance among the nation's industries, and there promises to be a very pronounced demand for the cattle products of Colombia once a system of packing houses is established. The relative proximity of Colombia to ports of the United States gives the South American Republic an advantage over most of its competitors in American markets. Endeavors are being made to improve the breed of the animals through the introduction of high-bred stock.

The great llanos of eastern Colombia, which extend across Venezuela also, are said to contain some of the finest cattle ranges in the world, assuring the future of the cattle industry in Colombia. These rolling plains are drained by the upper waters of the Amazon and Orinoco Rivers and their numerous tributaries, assuring sufficient water. Once suitable roads are built to open this territory, the cattle lands are certain to be utilized and stocked, there being sufficient room and pasturage for many millions of animals. To-day most of the animals exported are raised either along the banks of the Magdalena and some of its tributaries or near the various Caribbean ports.

FOREST PRODUCTS.

Nearly all the known varieties of hardwoods are found in Colombia, these including *lignum-vitæ*, quebracho, mahogany, cedar, walnut, etc., as well as vast quantities of mangroves and similar trees. The tagua or ivory nut is gathered, although its quality is said to be unequal to that of Ecuador. Although some of the forests are situated near navigable rivers and are thus accessible, the forestal development of the Republic awaits improved transportation facilities, and much of the timber wealth is thus reserved for a future day and generation. Only a very small amount of lumber and hardwood is being exported at the present time, exports of forest products being restricted mainly to the tagua or ivory nut.

MANUFACTURING.

According to statistics published by the Colombian Government, there were in the Republic, at the close of 1915, 121 manufacturing

plants, representing an investment of \$12,406,000 United States currency. Consul Claude E. Guyant, at Barranquilla, states, however, that the Government's list is not quite complete, as several well-known factories were not included. The statistics that follow have been obtained from Consul Guyant's report:

Establishments.	Number.	Capital invested.	Establishments.	Number.	Capital invested.
Textiles and thread.....	21	\$3,530,400	Shoes.....	6	\$255,000
Sugar.....	1	2,000,000	Tanning extract.....	1	200,000
Oil refining.....	1	1,200,000	Glass.....	3	150,000
Electric light and power.....	5	1,086,000	Iron foundries.....	3	53,000
Flour.....	6	780,000	Carbonated beverages.....	7	38,200
Matches.....	5	750,000	Distilled liquors.....	1	22,000
Chocolate.....	1	515,700	Perfumery.....	1	10,000
Cigars and cigarettes.....	1	428,000	All others.....	18	204,300
Cement and artificial stone.....	3	420,000			
Beer and ice.....	5	433,000			
Soap and candles.....	18	330,400	Total.....	121	12,406,000

Two of the plants (sugar and oil) have a capitalization of more than \$1,000,000 each; 3 textile factories and one electric plant have capitalizations of more than \$500,000 each; 10 enterprises (4 textile mills, 1 flour mill, 2 match factories, 1 cement factory, 1 chocolate factory, and 1 tanning extract plant) are capitalized at \$200,000 to \$500,000 each, 12 factories at \$100,000 to \$200,000, 15 at \$50,000 to \$100,000, 50 at \$10,000 to \$50,000, and 28 at less than \$10,000.

The city of Bogota contains 40 of these industrial plants, with a total capitalization of \$3,013,000; Medellin ranks next in importance, with 30 plants, capitalized at \$2,380,600; Barranquilla has 18 factories, capitalized at \$1,370,000, and Cartagena 12, in which \$2,993,000 is invested. The statistics for the latter city include a sugar mill at Sincerin, about 20 miles away, which is capitalized at \$2,000,000. Despite the fact that there are 21 textile mills in the country, goods of this character to the value of \$3,343,383 were imported in 1915.

SUMMARY OF INVESTMENT PROSPECTS.

Colombia as a field for the investment of foreign capital offers, by reason of its geographical location and the vastness of its resources, many opportunities for substantial returns. Great Britain is estimated to have placed no less than \$33,000,000 in Government bonds, railways, mines, etc. Most of the British-owned railway lines (all of which are small) are prospering, and, as has been indicated, some of the mines have realized substantial returns. France and Belgium have invested fair-sized amounts in mining development, Germany in banks and platinum mines, and the United States in mines, banana lands, municipal loans, etc. Those familiar with Colombia unanimously agree that its natural resources are vast and that, when it is opened up by means of railways and roads, the development of the country will be very rapid. Following the possible influx of immigration, countless opportunities are certain to present themselves for the safe and successful investment of capital. As the country advances, public-utility enterprises—now few in number—

will be established, manufacturing enterprises will be enlarged and improved, agricultural areas will be developed, and new mines will be discovered and worked. There would doubtless be opportunities for the establishment of companies operated along lines somewhat similar to those that characterize the activities of the British South African Co. and other enterprises of that character. These companies, if provided with ample capital, could doubtless invest profitably in lands along the eastern Andean slope and in the eastern savannas. This wholly undeveloped territory, which is of vast area, is said to be extremely rich and to offer great future prospects for successful development along varied lines—agricultural, mineral, pastoral, and forestal.

ECUADOR.

INTRODUCTION.

Ecuador occupies a nearly three-cornered area of territory, stretching from the Pacific Ocean to the upper valleys of the Amazon. Colombia lies to the north and Peru to the south. No two authorities agree as to its exact area or population, the boundaries of this Republic and its neighbors being in dispute. Possibly 120,000 square miles and 1,500,000 inhabitants would be fair estimates. There are possibly 80,000 people in Quito, 80,000 in Guayaquil, 30,000 in Cuenca, 14,000 in Riobamba, 12,000 in Latacunga, 10,000 in Loja, and from 6,000 to 9,000 each in Ambato, Esmeraldas, Guaranda, and Ibarra. Few of the cities and towns have assumed importance as yet, and a very large percentage of their population is of the Indian race.

Ecuador, although its development has been extremely slow, may be said to offer many opportunities for future development. A certain amount of American, British, French, and German capital has been attracted to the country, and a vastly larger amount will follow immigration. Thus far only a few settlers have come to Ecuador, but in time the agricultural possibilities of the Republic will serve to bring them in increasing numbers. The low, hot coastal lands, unlike the shores of Peru and Chile, are covered in many places with dense tropical vegetation and are more productive than the coastal districts of the neighboring countries. To the east of these plains rises the vast cordillera of the Andes, culminating in giant peaks, no fewer than 21 of which are perpetually capped with snow. Many of the mountains are volcanic, some of the volcanoes being active. Between the mountain ranges are cool valleys, and to the east lies the forest-covered Oriente.

NATIONAL DEBT.

The financial history of the Republic of Ecuador commences as early as 1834, during which year the Republic was made responsible for £1,424,579 of the original Colombian debt ($21\frac{1}{2}$ per cent), upon which the arrears of interest amounted to £683,798.

In 1855 the total debt was fixed at £1,824,000, of which £400,000 was given in exchange for approximately £1,000,000 arrears of interest. The balance of the arrears of interest was largely settled by a land grant and by the delivery to the bondholders of \$860,000 Peruvian $4\frac{1}{2}$ per cent bonds.

In 1890 the bonds of 1855 were converted into £750,000 New Consolidated Debt, interest at the rate of $4\frac{1}{2}$ per cent for five years, $4\frac{3}{4}$ per cent for the second five years, and 5 per cent thereafter.

On October 27, 1897, arrangements were made between the holders of the Consolidated Debt and the owners of the then newly formed

Guayaquil & Quito Railway (see "Railways") whereby the bondholders would receive \$175 in new 6 per cent first mortgage bonds of the railway, carrying interest from January 1, 1898, and a bonus of £2 10s. in exchange for each £100 of Consolidated Bonds of the Government. The company subsequently delivered to the bondholders \$1,014,000 railway bonds. The Government in 1898 agreed to recognize the Consolidated Bonds acquired by the Guayaquil & Quito Railway at 35 per cent of their par value, to pay 4 per cent per annum interest and 1 per cent sinking fund on the recognized amount, and to hand over to the company the sum of £33,950 10s. in cash, this being equal to the cash paid by the railway to the former bondholders in carrying through the transaction.

Further events in connection with the above transaction will be discussed in the section on "Railways."

In 1904 the Government of Ecuador delivered to the Guayaquil & Quito Railway, in return for the delivery of the former Consolidated Bonds, "Condores Bonds" to the amount of £77,900. The original issue of these bonds had been £83,400, of which £5,500 had been paid off through a sinking fund. The interest rate is 4 per cent and the sinking fund 1 per cent per annum, and they are secured on a portion of the customs receipts. The interest payments were made until July, 1911, with some delay, the coupon for the latter date having been paid in March, 1914. Bonds to the amount of £71,700 remain outstanding, and their original offering price was said to have been 68. The bonds have not been widely distributed.

In accordance with an arrangement made in September, 1908, between the Government of Ecuador, the Guayaquil & Quito Railway, and the Council of Foreign Bondholders, London, representing the bondholders, an issue of \$1,185,380 4 per cent salt bonds of the Government was created for the purpose of funding the coupons due January and July, 1908, and January, 1909; \$1,075,050 of these bonds, par value \$90 United States currency, were issued, interest January and July, to be paid off by means of a cumulative sinking fund of 4 per cent per annum up to par. The bonds were to be secured on the entire proceeds of the sale of salt, a Government monopoly. Interest and a large part of the sinking fund were paid until the outbreak of the European war. Bonds to the amount of \$636,480 remain outstanding. The quotation in January, 1918, was 45½, as compared with the high and low prices since 1911 of 78¼ and 38, respectively.

In December, 1910, the Government of Ecuador contracted a loan with Speyer & Co., of New York, for £300,000, secured by 6 per cent treasury certificates. This loan was fully paid off in 1913.

PROVINCIAL AND MUNICIPAL FINANCES.

There are no provincial loans authorized or outstanding in Ecuador. The Provinces have not the right to negotiate loans except only as advances of taxes to be collected. The municipalities owe but little, such debts being mostly of a floating character. The municipality of Quito has been authorized to create a loan for public works, a portion of which has been secured from the local banks. Guayaquil has also borrowed some funds and is said to have a moderate floating indebtedness.

BANKS.

There are in Ecuador four principal banks of issue, two mortgage banks, and two mixed banks. These banks will be briefly reviewed:

The Bank of Ecuador (Banco del Ecuador), the head office of which is at Guayaquil, is capitalized at 3,000,000 sucres. Its bank-note issue totals \$1,223,554.

The Commercial and Agricultural Bank (Banco Comercial y Agrícola), the largest bank in the Republic, is capitalized at 5,000,000 sucres and has a bank-note issue of \$2,996,385. The head office of this bank is at Guayaquil.

The Banco de Pichincha is located in Quito, the capital. It has 1,500,000 stock outstanding, a large proportion of which is owned by the Ecuadorian Corporation (see "Public utilities"). The bank-note issue amounts to \$890,965.

El Banco del Azuay, capitalized at 400,000 sucres, is located in Cuenca. This city, located about 70 miles southeast of Guayaquil, is of some commercial importance, although it is a considerable distance away from any railway. The town has a population of about 30,000, mostly of the Indian race.

Other banks of importance are the Banco de Crédito Hipotecario, a mortgage bank, capitalized at 1,000,000 sucres; the Banco Territorial, at Guayaquil, capitalized at 1,000,000 sucres, also a mortgage bank; and the Compañía de Crédito Agrícola e Industrial (capital 1,000,000 sucres), which operates a mortgage and savings bank.

RAILWAYS.

GUAYAQUIL & QUITO RAILWAY.

There is only one important railway in Ecuador—namely, the line extending from the port of Guayaquil to Quito, the capital. Although this project is a very old one, dating back perhaps more than half a century, the two cities were not placed in rail communication until 1908.

The starting point of the Guayaquil & Quito Railway is at Duran, a town of moderate importance located opposite Guayaquil on the banks of the Guayas River. The river at this point is about three-quarters of a mile wide, and passengers are ferried across by steam ferryboats owned by the railway company. At Guayaquil a wharf of sufficient size to take care of traffic is owned by the railway company, while at Duran are located shops, warehouses, and the offices of the company. The length of the line is 290 miles and the gauge 3 feet 6 inches. The highest altitude reached is 11,841 feet, at Urbina, between Riobamba and Ambato.

The country between Guayaquil and the edge of the mountain slope is cultivated with cacao, sugar cane, coffee, and other products of the Tropics, and this section of the line furnishes a very large proportion of the total traffic handled. About 58 miles from Guayaquil the climb into the sierra begins, and the trains from this point are shorter and are handled by heavier locomotives. The railway after a short climb enters the Chan-Chan Valley, which is followed along a route laid out under great engineering difficulties. The curves on this section are extremely wide and numerous, and the

grade reaches $4\frac{1}{2}$ per cent. The railway, in a general way, is laid out along the route of a torrential river, which is crossed and re-crossed at various points. At an approximate altitude of 4,000 feet the city of Huigra is reached; from this point a rugged, broken country is entered, and wonderful engineering feats had to be performed in making the climb up the Andean slopes. Along this section of the railway is located the "Devil's Nose," where the line enters a deep gorge. In this gorge the line comes to an abrupt end, and the trains have to be backed up over a switch along a ledge blasted out of the face of the precipice. By this means a higher ledge is reached and forward progress is again possible. The "Alausi Loop," at an altitude of 8,553 feet, is another splendid engineering feat. The road then climbs to the Palmira Pass, 10,600 feet above the sea. Then there is a slight descent to Riobamba, one of the largest towns in Ecuador, located at an altitude of 9,020 feet. There is another heavy climb from that place to the Chimborazo Pass, the altitude of 11,841 feet being the highest point reached on the entire line. The railway then drops to Ambato, 8,435 feet, located in the center of a well-cultivated district, reclaims to the base of Mount Cotopaxi, 11,653 feet, and enters the Machachi Valley, reaching Quito at 9,375 feet elevation.

The financial problems of this railway have been numerous. The construction of the system was extremely costly, and earnings never came up to expectations. Its financial history has been partly reviewed in the section devoted to Government loans. The outstanding securities of the railway company are as follows:

(a) Common stock, \$7,032,000, par value \$100, of which \$3,445,700 was issued to the Ecuadorian Government in part payment for the concession. No dividends have ever been paid. The Government appoints two directors and the majority stockholders six directors. In addition to the outstanding common stock, as above, \$1,000 special voting stock is held by the Council of Foreign Bondholders, of London, this stock carrying the right to elect three directors.

(b) Seven per cent cumulative preferred stock, par \$100; \$5,-250,000 outstanding. No dividends have ever been paid.

(c) Five per cent first mortgage bonds (\$10,813,000). These bonds were originally issued as 6 per cent bonds and were guaranteed as to principal and interest by the Government of Ecuador. They were secured by a first lien on the customs revenue, as well as by a first mortgage on the railway. In 1908 the rate was reduced to 5 per cent per annum and the bonds were made subject to the 6 per cent prior lien bonds (see next paragraph). The interest dates are January and July, and there is a 1 per cent sinking fund which purchases bonds below par or draws them at the latter figure. The July, 1910, coupon was paid in January, 1913; the January, 1911, coupon in May, 1913; the July, 1911, coupon in September, 1913; the January and July, 1912, coupons in December, 1913, and March, 1914; no coupons were paid during 1915 and 1916. These bonds were quoted at 31 in January, 1918, as compared with the high price of 66 since 1911.

(d) Six per cent prior lien mortgage gold bonds; \$1,000 denominations; \$2,486,000 issued and \$1,975,000 outstanding; interest January and July. Coupon payments have been regularly made, although sometimes with slight delay. Sinking-fund payments of $2\frac{1}{2}$

per cent per annum were made regularly until December 31, 1914, and the final maturity date for the bonds is January 2, 1930. The issue is secured by a prior charge on the property. These bonds were quoted at 71 in January, 1918, as compared with the high price of 92 since 1911.

The earnings of the Guayaquil & Quito Railway during the past several years have been as follows:

Years.	Passenger earnings.	Freight earnings.	Miscellaneous.	Operating expenses.	Deficit.
1913.....	\$308,678	\$689,155	\$13,891	\$1,236,771	\$225,047
1914.....	297,966	709,134	10,712	1,084,007	66,195
1915 ^a	303,658	705,359	16,799	1,091,696	65,881
1915 ^b	362,205	645,627	28,402	1,099,313	63,079

^a Year ended June 30, 1915.

^b Year ended Dec. 31, 1915.

The bonds of the company are listed on the London Stock Exchange; the stocks of the company are not quoted.

OTHER RAILWAYS IN THE REPUBLIC.

Such other railways as exist in the Republic of Ecuador are not important. The Central Railway of Ecuador, a British company, was registered in 1910 to acquire a concession granted in 1909 for the construction of a railway from the Port of Manta to Santa Ana, about 35 miles, together with a wharf at Manta. The capitalization of this company consists of (1) £100,000 stock, on which no dividends have been paid; (2) £100,000 6 per cent guaranteed prior lien bonds, secured by a first charge on the property and concession; (3) £42,500 6 per cent income bonds, issued in exchange for former first mortgage bonds on the basis of one new bond for four old bonds. The original 6 per cent bonds of the company were offered in Paris at 97 per cent, and certain export duties were assigned for their service.

No interest has ever been paid on the prior lien bonds, and no statements of earnings have been made public for some years. The line is equipped with American locomotives and cars.

Another company, the Compagnie Française de Chemins de Fer de l'Equator (Bahia de Caraquez to Quito Railway), was formed in 1909, to construct a railway from the port of Bahia de Caraquez to Quito, 185 miles. A bar across the mouth of Caraquez Bay, on which the port is located, closes it for large vessels. This bar was to have been dredged; and it was expected that the harbor, owing to its location, would become important. In June, 1909, the company offered through the Banque Commerciale et Industrielle, of Paris, 7,000,000 francs bonds at 84½. The bonds bore interest at the rate of 5 per cent per annum and were to have been redeemed by a sinking fund of one-half of 1 per cent per annum. They were secured by a portion of the customs receipts of the Province of Manabi, and the Government of Ecuador proposed to guarantee 6 per cent interest on the cost of construction up to 25,000,000 francs, in so far as the net receipts of the line are not sufficient to cover this in proportion as each section costing at least 200,000 francs is opened for traffic.

Some progress was made on the construction of this railway, but owing to the war and other reasons many delays were occasioned. Earnings of the unfinished sections have not been large, and the roadway and equipment have not been maintained up to standard. Early in 1917 it was stated that the company would abandon operations and that the railway would be taken over by the Government. The Government is making certain improvements and hopes to continue the construction of the railway as soon as conditions are favorable.

There are a number of other railway undertakings partly constructed, surveyed, or projected. Work has been under way on a line to extend from Guayaquil westward to the oil fields in the Peninsula of Santa Elena, terminating at the small port of Ballenita. A short railway runs from Puerto Bolivar, near the Peruvian boundary, inland for a few miles, reaching some cacao lands. In time this line will probably be extended westward to the town of Jiron and thence northward to Cuenca. A projected line that may in time be carried forward will extend, it is hoped, from Ambato, a station on the Guayaquil & Quito Railway, eastward down the Andean slope to San Antonio on the Cururay River. This river is a tributary of the Napo, one of the feeders of the Amazon. The railway will extend, in part, through a wilderness now inhabited only by wild Indian tribes, and will provide an outlet for the forest products of the Oriente. About 25 miles of track have been laid.

The present railway mileage of Ecuador is about 400.

PUBLIC UTILITIES.

Public-utility development in Ecuador has been relatively unimportant. In Quito there is an electric tramway line, installed by J. G. White & Co. This, together with the Quito Electric Lighting & Power Co., which furnishes light and power to the city, is owned by the Ecuadorian Corporation, a British company, incorporated in 1913 with a capitalization of £307,783 shares (£500,000 authorized) and £322,500 6 per cent first debentures (£500,000 authorized). The Ecuadorian Corporation also owns water power rights near Quito, the Inca Springs Co., an interest in the Banco del Pichincha at Quito, lands at Quito and Duran, etc. This company met with temporary financial difficulties during the early days of the European war owing to adverse exchange conditions, but its position has since improved and the interest due April 15, 1915, and all subsequent coupons have been duly paid at maturity.

There are two street-car lines in Guayaquil, as well as electric lighting and gas plants. The water supply of the city is brought through mains from a point in the mountains some 53 miles away. All the public utilities of this city might readily be improved. There are one or two mule tramway lines in the interior, small electric lighting plants have been established in a few of the cities, and there are some opportunities for the extension of this service. Water service is far below the needs of the people, and sewerage systems are needed in almost every city.

At the close of the year 1915 there were 2,926 telephone instruments installed in Ecuador, mostly in Guayaquil, the leading company in the field being the National Telephone Co., capitalized at \$125,000 (increased in 1914 from \$50,000). The total capital invested in the

telephone systems of the Republic is said to be \$181,687. There are approximately 5,400 miles of telegraph, and upward of 400,000 messages are handled annually.

MINING AND PETROLEUM ENTERPRISES.

Ecuador has been the least fortunate among the Andean Republics in mineral resources. Gold seems to be the only mineral of commercial importance at the present time, although copper, quicksilver, iron, lead, and platinum all exist in unknown quantities. Petroleum has also been located and will be discussed in subsequent paragraphs.

The Zaruma mines, in Southern Ecuador, have long been known to the outside world. They were first known to the Spaniards in 1549, since which time they have been worked in a haphazard, spasmodic manner. During the early part of the nineteenth century a large population was supported by the mines. In the latter years the gold production decreased and the importance of the industry steadily declined. English and French companies have in later years worked important mines in the district, including the *Compañía Mineral Nacional Felix*, formed in France in 1889 and the *Zaruma Gold Mining Co.*, of Great Britain, formed in 1880, with a capitalization of \$250,000. The *Compañía Exploradora* was also a factor in the field. The Zaruma company met with financial difficulties and has since been reorganized. The present Zaruma Mining Corporation was registered in 1913 with a capitalization of \$110,000 preferred and \$10,000 deferred stock. At last accounts 1,838 acres were held and the stock was owned by French and British interests. The mine is presumably idle. The South American Development Co. seems at the present time to be the only company carrying on any mining operations.

There are copper deposits in the Department of Loja. A little mining has been carried on without success. While there is every reason to believe that the great Andean regions of the country contain considerable copper, little exploration work has been carried on.

Because of the successful development of petroleum-bearing zones in Peru and the fact that oil deposits are known to exist in Colombia and Venezuela, attention has been directed to Ecuador. Bituminous seams in which fair quantities of petroleum have been found to exist have been variously located in the northern portions of the Republic. In El Oro also, not far from the boundary with Peru, oil has been located, this field holding very good prospects, it is claimed. Santa Rosa is the town nearest to this prospective petroleum field.

The principal oil deposits thus far located in Ecuador lie about 90 miles southwest of Guayaquil and are not more than 750 miles from Panama, being near the minor port of Santa Elena, in desert country. They are reached from Guayaquil by means of a fairly good automobile road and have telephone and telegraph connections with that city. The surface of the country is said to be fairly level, inclining slightly toward the sea. "In this district," says the *South American Journal*, "the layer containing the petroleum, known by its black color, is blue shale of unknown thickness, superficial at some points, and elsewhere covered with marine debris; is very

spongy and rests on a base of impermeable sandstone, which prevents much filtration, although it is impregnated with oil. It is nearly horizontal, of variable thickness, about 3 feet in the center, and covers an area extending 6 miles north and south and about 20 miles inland. The presence of a small oil fountain, together with considerable gas, would indicate that deep drilling would produce flowing wells."

At the present time the method employed in collecting the petroleum, about 25,000 barrels of which are secured annually, is to dig small holes to a depth of not more than 50 feet down to the impermeable sandstone. The life of these "wells" is anywhere from three months to three years.

In 1910 a well was sunk to the depth of about 150 feet and in 1913 another to a similar depth, both passing through small veins of oil and gas. A third well of 1,250 feet was to have been sunk, but work was discontinued at about the time of the outbreak of the European war, owing to lack of available capital. The deposits seem to be similar to those of the Lobitos and Negritos fields of Peru, which yield successfully at a depth of about 1,000 feet and which have been steady large producers for many years. It was stated in 1916 that drilling in the Ecuadorian field at that time cost approximately (including casing) \$7.75 per foot to 1,500 feet and slightly less than \$10 per foot after that depth is reached. Native labor receives from 60 to 75 cents gold per day. Mechanics are obtainable only with difficulty.

The Ecuadorian petroleum is certain to find a ready market in Guayaquil and elsewhere throughout the Republic. Already the Guayaquil electric lighting plant, the local brewery, and the gas works are using it, and the Guayaquil & Quito Railway has converted a number of its locomotives into oil burners. Local river boats and a number of the small industrial plants of the country would doubtless use it if obtainable, particularly since the price of coal has soared to record heights. A small refinery was attempted at Santa Elena, but the enterprise did not prove successful. A plant exists that treats small quantities of the oil for asphalt.

Most of the oil concessions are held by Ecuadorians. However, in 1910, an Anglo-French company known as the Ancon Oil Co., with £250,000 authorized capitalization, of which £81,060 has been subscribed and fully paid up, was incorporated to acquire five oil claims of 800 acres each. The well on the Ancon property has been sunk to the depth of approximately 2,180 feet, and an agreement has been entered into with another company, the Ecuador Drilling Co., for assistance in carrying on the work.

AGRICULTURE.

The leading product of the Republic is cacao, the Ecuadorian cacao ranking second to none in quality. The cacao industry employs directly or indirectly a relatively large proportion of the population, and a number of joint-stock companies have from time to time been formed to carry on the raising of the product on an extensive scale. Two of the largest companies are German, working the Seminario, Puga, and Clementina Estates. Some of the plantations are under

British control, and the remainder are, for the most part, locally owned. It is estimated that an area of 100 square yards will accommodate more than 1,300 trees and will yield under normal conditions more than 1,000 pounds of cacao. Three or four years ago it was calculated that a season's crop would return a profit of about 12 per cent on the investment. At present prices the profit varies from 15 to 25 per cent.

Rice and maize may be readily produced, but no great headway has been made in cultivating these products. Plantation rubber is being raised in small quantities; the soil and climate are highly favorable to its cultivation. The tagua or ivory nut was exported rather extensively before the European war, and a moderate demand exists for the product at the present time. Sugar, bananas, oranges, and other products are cultivated. The oranges might readily be shipped to Panama and elsewhere were it not for the unfavorable freight rates, the quality raised being excellent. Enough tobacco is grown for home needs, and a large number of coconuts are gathered in the coastal lowlands.

Although there are considerable areas that might be used for pastoral purposes, the development in this field has been comparatively slow. A small number of horses and mules are exported, as well as some hides. Practically all of the wool clip and meat supply are consumed in the country.

FOREST RESOURCES.

One might write an elaborate essay concerning the vast forest wealth of eastern Ecuador. C. Reginald Enock, a well-known traveler in South America, in his book "Ecuador" (Scribner's South American Series) describes the country lying to the east of the Andes: "It is majestic in certain aspects, but becomes at times melancholy, sombre, and oppressive. There is no horizon. The view is everywhere barred by trees, whose green walls inclose the channels of the rivers to the very verge." These forests contain many varieties of hardwood trees and practically every known form of forest wealth. There are numerous rivers in the eastern section of the Republic, all of which flow in a general easterly direction. Almost no means of communication exist between the forest country and the Andean plateau, and the development of the timber and hardwood resources awaits the coming of better transportation facilities.

MANUFACTURING.

One need scarcely say that the industrial development of Ecuador has been decidedly restricted. There are a few factories and manufacturing plants in the Republic, mostly in Guayaquil. These include the national shoe factory, capitalized at \$200,000 and employing about 100 persons; 7 flour mills; 6 cotton and woolen mills; 11 breweries, 7 of which are located in Quito; 3 tanneries; 24 ice plants; a few small boat and ship building plants; an iron foundry; machine shops; chocolate and candy factories; sawmills; furniture factories, etc. The Panama hat industry is, of course, extremely important.

THE GUIANAS.

BRITISH GUIANA.

INTRODUCTION.

Great Britain's only colony on the continent of South America, British Guiana or Demerara, is bounded on the northwest by Venezuela, on the east by Dutch Guiana, and on the south and southwest by Brazil. At the source of the Essequibo River the colony is within two-thirds of one degree (north latitude) of the equator. Its area is 90,277 square miles, exceeding that of England, Scotland, and Wales combined. Its seacoast covers 270 miles, and its depth varies from 300 to about 535 miles. The coastal lands are extremely flat, the country sloping gradually as the interior is reached. The estimated population of British Guiana is 300,000.

British Guiana is a land of many rivers, some navigable and important. The Demerara River, though not the largest, is by far the most important, since Georgetown, the capital and principal town (population 65,000), is located at its mouth. There are about 58,000,000 acres of land in the colony, of which only about 2,000,000 acres are owned privately. About 11,000,000 acres of the land are located in the accessible lowlands. At present practically the whole population lives in the coastal belt. Many of the sugar plantations are located close to the sea and have been compelled to put up extensive dykes for protection against the inroads of the waves. Similar conditions exist among many of the river plantations. The average annual rainfall at Georgetown is 93 inches.

In the highlands there is a great area of prairie land known as the Rupununi Savannah, said to be magnificent cattle country and suitable also for the raising of cotton and tobacco. There is sufficient water supply in the district, which is, however, rather difficult of access owing to the lack of a railway to the interior. The various resources of this and other sections of the colony will be discussed in later paragraphs.

Georgetown contains 50 miles of paved streets and covers an area of more than 1,300 acres. An excellent system of tramways operated by the Demerara Electric Co. furnish local transportation. This company also provides electric lighting.

BONDED DEBT—FINANCES.

The public debt of British Guiana amounts to approximately £3 per head of population. There are only two important external issues, both mostly held in London and listed on the London Stock Exchange. One of these issues bears interest at 4 per cent per annum and the other at 3 per cent. These issues are as follows:

Four per cent inscribed stock, redeemable 1935, authorized and outstanding £194,500, interest January and July 15. The closing

price of this issue July 27, 1914, was 99 and the price January, 1918, about 80.

Three per cent inscribed stock, redeemable 1923 to 1945, interest February and August, authorized and outstanding £250,000. The closing price of this issue July 27, 1914, was 77 and the price January, 1918, about 61.

No British stamp-duty taxes are payable on the two issues.

The revenues and expenditures of the colony generally about balance. In recent years they have averaged approximately £550,000 per annum; resources and sources of revenue are sufficiently large to assure the maintenance of the interest and sinking fund on all outstanding issues of bonds.

BANKING AND INSURANCE.

The banking facilities of British Guiana are amply provided by the Colonial Bank, the Royal Bank of Canada, and various private interests. A large amount of insurance business is handled by the Demerara Mutual Insurance Co., which also maintains agencies throughout the West Indies.

RAILWAY DEVELOPMENT.

There are two railway lines operating in British Guiana, the most important of which is the Demerara Railway, operating 79 miles of road. The main line is of 4-foot 8½-inch gauge; this line is 60 miles in length, its track extending from Georgetown eastward along the coast to a point opposite New Amsterdam (Berbice), the second city in importance. There is another 19-mile line that runs from Vreed-en-Hoop on the Demerara River to Greenwich Park on the Atlantic Ocean, this line having a gauge of 3 feet 6 inches. The original prospectus of the Demerara Railway was issued in 1845, when subscription was invited for 10,000 shares of £25 stock, payable in installments. The proceeds were to be used to construct a line 20 miles in length from Georgetown easterly to Mahaica. The company was incorporated October 30, 1846, and grading was commenced several months later. The concern had been floated during a great railway boom in England and elsewhere, and, as this boom collapsed very shortly after construction work on this line was begun, many of the shareholders who had made investments in shares of other railway companies found themselves embarrassed to such an extent that they were unable to continue installment payments on their Demerara Railway shares. The assistance of the colonial government alone saved the situation through advances made to the company; however, funds raised were only sufficient to complete 5 miles of road from Georgetown to Plaisance. This short line was opened for traffic in the year 1848 and is actually the oldest railway in South America.

Construction work was resumed prior to the year 1851, and the extending of the line was slowly continued, Mahaica being reached in 1864. In 1899 this line was continued to Rossignol, opposite New Amsterdam, which latter city, as stated, is the second place of importance in the colony. The other section of the railway, known as the West Coast Line, was also completed in 1899, with the exception

of 4 miles, recently completed. It is contemplated that at some future date the railway will be extended from New Amsterdam to the boundary with Dutch Guiana.

Sprostons (Ltd.), a large joint-stock corporation operating in the colony, has constructed a railway from Wismar on the Demerara River, some 65 miles above its mouth, to Rockstone, on the Essequibo River (18½ miles). This line is of meter gauge and was built to provide a means of access to the upper Essequibo River, avoiding extensive and dangerous rapids, and to the Potaro and other gold fields. The little railway runs through a primeval forest and handles, in addition to the passenger traffic (including in normal times a certain amount of tourist traffic), a fair quantity of greenheart and other varieties of timber. Sprostons (Ltd.) is one of the largest companies in the Guianas, employing normally more than 1,000 hands. The concern owns a foundry, woodworking mill, ship-repair yard, lumber yard, the railway just described, and a number of steamers, launches, etc., maintaining service along the coast and in the various rivers.

The construction of a railway inland to the boundaries of Brazil has long been contemplated and would prove an invaluable means of developing the interior of the colony. As has been pointed out, there are resources of considerable value in the regions above the navigable points in the rivers, and a fair amount of traffic might be developed.

Returning to a discussion of the Demerara Railway, it may be stated that the capitalization consists of £70,000 4 per cent debenture stock (issued in 1901); £115,000 7 per cent perpetual cumulative preference stock, which was issued in the year 1861 (dividends have been regularly maintained on this class of stock, except for one period of four years, for which the accumulated dividends were subsequently paid off in 3½ per cent preferred ordinary stock, issued to the amount of £32,200); £312,500 4 per cent extension preference stock, issued in 1896, the dividend on which (£12,500 per annum) is equal to the amount received annually from the government as a subsidy following the construction of certain extensions; and £165,000 ordinary stock, which usually received dividends at the rate of 3 per cent per annum until April, 1912, when, owing to a drought, the dividend was omitted and was not resumed until 1917, when 4 per cent was paid. Gross receipts during recent years have been as follows (not including annual government subsidy of £12,500 per annum): 1908-9, £55,593; 1909-10, £52,091; 1910-11, £50,461; 1911-12, £49,713; 1912-13, £47,501; 1913-14, £51,881; 1914-15, £53,791. For the six months ended December 31, 1916, earnings amounted to £33,713, as compared with £29,489 in 1915, and a total of £10,641 remained available for dividends. Quotations on the various classes of debentures and stocks have been as follows:

Securities.	High price since January, 1911.	Price July 27, 1914.	Price January 1918.
4 per cent debenture stock.....	96	89½	71
7 per cent cumulative preference stock.....	119	106½	100
4 per cent extension stock.....	94	82½	87
Ordinary stock.....	47	-----	36

There is no market on the London Stock Exchange for the 3½ per cent preferred ordinary stock, which, however, is worth not far from 50. This and the various other classes of stock are held partly in Great Britain and partly in the colony. It was indicated in the last-issued semiannual report that sufficient was earned to warrant the resumption of dividends on the ordinary stock, but that owing to needed improvements dividends would have to be deferred for a short period. Prospects for the year 1917 were said to be most excellent for the company. The business handled during the second half of 1916 consisted of 330,386 passengers and 52,752 tons of freight.

PUBLIC UTILITIES.

The only important company in the public-utility field is the Demerara Electric Co. (Ltd.), a Canadian corporation with head office at Halifax, Nova Scotia, which holds a concession granted by the colonial government to furnish electric light and power and to operate a traction line, about 18 miles, in the city of Georgetown.

The Demerara Electric Co. was incorporated in 1899, in British Guiana, as successor to the British Guiana Lighting & Power Co. and the Georgetown Tramway Co. (Ltd.). The company does all of the electric lighting and traction business in Georgetown and in other places in the colony. The electric license is perpetual, but may be revoked at any time with the consent of the company. The tramway license is for 30 years, with a 20-year renewal privilege.

The capitalization of the company consists of \$425,000 common stock and \$500,000 first-mortgage 5 per cent gold bonds due 1929, interest (January and July) payable at the National Trust Co., Montreal, Canada. A small issue (approximately \$60,500) of 7 per cent notes was outstanding in 1917.

The company's reports for four recent years indicated the following results:

Items.	1913	1914	1915	1916
Gross earnings.....	\$143,616	\$141,237	\$135,325	\$135,978
Net earnings.....	57,156	56,706	48,143	45,270
Fixed charges.....	38,715	38,751	38,568	29,031
Surplus.....	18,441	17,955	9,575	16,239
Dividends.....	18,062	17,000	8,500	.....
Passengers carried ¹	1,501,882	1,458,578	1,301,687	1,279,618

¹ Not including transfer passengers; total including transfer passengers in 1916, 1,769,024. Lights in service (incandescent) December 31, 1916, 14,221; municipal lamps, 149; arc lamps and clusters, 218; stationary motors, 146.

The dividend rates have been as follows: 1904 to March, 1910, 1½ per cent per annum; 1910 to 1913, 5 per cent; October, 1913, to July, 1915, 4 per cent; no dividends during 1916.

As already mentioned, the general offices of this company are at Halifax, Nova Scotia. The control of the company is held by interests similarly controlling the Trinidad Electric Co., operating tramways and electric lighting in the colony of Trinidad.

MINING ENTERPRISES.

The mineral wealth of British Guiana is largely confined to gold and diamonds, although bauxite has recently been found in what promises to be paying quantities. Operations in gold mining were carried on as early as the sixteenth century and were prosecuted almost continuously during the seventeenth and eighteenth centuries. In the nineteenth century a new discovery of gold was made during the year 1849, just at the commencement of the gold rush to California; this led to the creation of a considerable amount of interest and much prospecting was carried on, with little result, however.

In the year 1857 mining was actively begun in the Yuruan district. Among other finds a nugget of 180 ounces was obtained. A few years later a further find was made along the Cuyuni River. A local company was formed to develop the mine extensively, but little profit resulted. In 1876 the discovery of gold in Dutch Guiana led to a temporary rush to that colony. This was followed by awakened interest in the British Guiana gold fields, and in 1883 it was recorded that mining was being carried on in the interior with success. By 1885 the industry had assumed considerable importance, and much excitement was created by the finding of 275 pounds of gold by an American prospector, Ferdinand Jacob by name. Shares of a company whose property was located at Himarracke, district of Mazaroni, with a par value of \$5, rose to \$37.10. Later a nugget weighing 333 ounces was discovered at Barima, its value exceeding \$6,500.

During recent years a considerable amount of dredging has been carried on with fair success. However, most of the gold taken out has been from alluvial diggings, a very large proportion of the diggers being negroes. During the 25 years to and including 1913 a total of 2,287,234 ounces had been mined, the 1913 output of 62,098 ounces being obtained from 10 different river districts. Several good finds have been made during recent years, including an important one in 1913 near Pigeon Island on the Cuyuni River. The mining districts are mostly difficult of access, and for that reason scientific mining with modern machinery is almost impossible under present conditions. When railway communications are established with the interior these conditions will be much improved.

The gold production of British Guiana during recent years has been as follows: 1908, 65,717 ounces; 1909, 74,001 ounces; 1910, 63,231 ounces; 1911, 55,543 ounces; 1912, 51,196 ounces; 1913, 62,098 ounces; 1914, 63,801 ounces; 1915, 53,907 ounces. Since 1890 the value of the gold production has exceeded \$40,000,000.

British Guiana produces a large number of diamonds, mostly of a small size, however. For the 13 years ended March 31, 1913, a total of 1,130,494 stones, weighing 85,809 carats, were produced. In 1913 the production totaled 75,479 stones, weighing 7,578 carats; in 1914 the production was 9,705 carats, valued at \$87,200, and in 1915 the production was 6,203 carats, valued at \$51,390.

On a number of occasions the discovery of oil has been rumored. The most favorable indications seem to be in the Waini River district. Asphalt has been located near the Atlantic coast, but is not worked.

TIMBER RESOURCES.

Of the area of British Guiana it is estimated that nearly five-sixths is covered with forests, practically all the property of the government. Most of this 78,500 square miles of timber lands is inaccessible, owing to the numerous waterfalls and rapids in the rivers. This vast region can only be developed following the establishment of a railway line from the coast or head of river navigation to the far interior. The exports of this timber have not thus far assumed very large proportions, totaling 437,111 cubic feet of timber and 517,919 cubic feet of lumber in 1913 and less than half that amount in 1915. An increasing trade in shingles is developing.

In the forest areas trees of many varieties are found, sometimes 40 to 60 varieties to the acre being noted. British Guiana greenheart, a wood of great strength, exists in large quantities and is being sought for to an increasing extent, owing to its usefulness in the construction of docks, heavy floorings, and for many other purposes. A large portion of the greenheart timber is shipped to Panama.

LIVE STOCK.

There are at present about 100,000 head of cattle in British Guiana and about 10,000 horses, mules, and donkeys. A number of cattle ranches have been established in the interior in the savannas of Rupununi and Takutu, and more than 10,000 cattle are stocked on them. These lands are rented from the Crown at a nominal rental, and, as has been stated elsewhere, are excellently suited for the industry. The development of the cattle industry in the interior, however, awaits the coming of the railway.

SUGAR.

Sugar has long been the principal source of revenue to British Guiana and in the early years of the colony brought great wealth to the owners of the various estates. In the long period of low prices the production declined seriously, and only recently has a revival been noted. It is stated that in the year 1837 there were no fewer than 200 estates, covering upward of 75,000 acres. To-day many of the estates have consolidated and the number has considerably decreased. The production from 1881 to 1885, inclusive, amounted to £12,038,699; from 1886 to 1890, £9,305,880; from 1891 to 1895, £8,276,916. In 1913 the exports of sugar consisted of 174,828,000 pounds, in addition to 118,699 gallons of molasses and 3,253,653 proof gallons of rum. In 1914 and 1915 the amount of sugar exported was 107,138 tons and 116,224 tons, respectively, and the amounts of rum exported totaled 3,489,729 gallons and 4,698,230 gallons.

The sugar lands of British Guiana are mostly situated in the coastal lowlands, and the area under cultivation for cane on September 30, 1916, totaled 77,167 acres. In his annual report for 1915 United States Consul George E. Chamberlin stated, as an example of the increased values and profits in the sugar industry of the colony, that an estate which in 1913 was sold for \$20,000 was resold to a local syndicate late in November, 1915, at \$150,000, and that during the two-year period the profits on the output of sugar had

been \$125,000. The profits in sugar during 1916, although not yet fully enumerated, have been the largest since the early days of the colony, with the result that extraordinary prosperity is being enjoyed. The value of the 1915 crop exported or consumed at home, including rum and other products, was nearly \$13,000,000—a figure \$3,500,000 in excess of 1914 and \$6,000,000 in excess of 1913. The 1916 crop probably realized more than \$15,000,000.

RICE.

The raising of rice has become an important and profitable industry in British Guiana, whose lowlands are very well fitted for its growth. The large East Indian population of British Guiana are extensive users of the product, and a good market is likewise enjoyed in Barbados, Trinidad, and other West Indian islands. Demerara rice is of an excellent variety. Formerly 39,000,000 pounds of rice were imported annually, whereas to-day practically none is imported. The production in 1916 was approximately 70,000,000 pounds, and the amount exported was 29,139,265 pounds, as compared with 20,289,568 pounds in 1915 and 15,880,941 pounds in 1914. Probably the largest producer of rice in the colony is the Aberly estate, operated by an American company. The rice exported from the entire colony during 1916 was valued at \$1,043,502.

COCONUTS, CACAO, ETC.

Increasing attention has in late years been given to the raising of coconuts, and fully 17,000 acres of trees have been planted. In 1915, 2,090,083 nuts and 181,339 pounds of copra were exported, as compared with 1,889,921 nuts and 183,354 pounds of copra in 1914. A considerable amount of coconut oil was also exported during 1915, the total value of all coconut products shipped being in excess of \$45,000. When all of the area planted with coconut trees comes into bearing the production will increase to many times the present amount. British Guiana, not being subjected to severe hurricanes, is particularly suited for the growth of the nuts.

Cacao is being grown in increasing quantities but is not yet an important article of export. In 1916 the cacao shipped abroad was valued at only \$6,055, as compared with \$8,508 the year before. During three recent years Dutch Guiana exported cacao valued at more than \$1,200,000, mostly to the United States.

Coffee of a good quality is also being raised in small though increasing quantities. In 1913 the exports of coffee were about 89,300 pounds; in 1914 the amount was 239,000 pounds; while in 1915 there was a slight setback, the quantity exported being 172,326 pounds. Limes are also being grown, and a small, though increasing, amount of citrate of lime is being shipped from the colony.

RUBBER AND BALATA INDUSTRIES.

Rubber planting has of late attracted much attention in the colony, and much is expected from its development. Upward of 6,000 acres have been planted with rubber trees and doubtless the area will be vastly extended. Very little rubber has as yet been exported.

Balata is the fourth most important product of British Guiana, the annual value of the product being exceeded only by sugar, rum, and gold. The exports during 1915 realized \$848,541, as compared with \$784,089 in 1915. The shipments in the former year were the largest in the history of the colony. Several important British companies are interested in the industry.

TOTAL TRADE.

The total import and export trade of British Guiana during the year 1916 amounted to \$28,548,647, of which \$18,038,716 represented exports and \$10,509,931 imports. The total foreign trade for 1915 was \$24,810,668.

DUTCH GUIANA.

INTRODUCTION.

Dutch Guiana, or Surinam as it is sometimes called, is situated between British and French Guiana, being bounded on the north by the Atlantic Ocean. The colony's area is about equal to New York State, and its population is about 87,000, of whom a vast majority are colored. Paramaribo, the capital, contains about one-half of the population and is the only town of commercial importance. About 65,000 acres of land are under cultivation, a vast proportion of the country being covered by forests. The colony, for many reasons, has not progressed to any considerable extent during recent years, although the recent rise in the price of sugar has somewhat improved conditions.

TRANSPORTATION CONDITIONS.

There are stated to be about 109 miles of railway in Dutch Guiana, the only important line extending from Paramaribo to Macami, a gold-shipping point on the Surinam River. Only one passenger train a week was operated at last accounts, the railway passing through a poor and thinly settled territory. During a recent year gross earnings were stated to amount to about \$54,000, about one-half of operating expenses. There are a number of rivers, some of which are navigable for heavy-draft steamers for a short distance. Beyond the tide limit, however, these steamers are wholly dependent on the rather uncertain rainfall of the interior. Lack of transportation greatly hampers the development of the entire country.

AGRICULTURE AND RELATED INDUSTRIES.

Sugar, in the days of slavery, was a source of great wealth to Dutch Guiana. It is recorded that in the year 1683 there were 50 sugar plantations, and 50 years later 400 sugar plantations. In 1760, 21,000,000 pounds of sugar were exported and in 1800, 26,000,000 pounds. Following the abolition of slavery the industry rapidly declined in importance. To-day there are probably not more than a dozen plantations in existence, the scarcity of labor greatly hindering development. The years 1915 and 1916 witnessed the best sugar business in a quarter of a century, and hopes are entertained of a revival of the industry. The soil of the sugar lands is fertile and the same ground may be used for many consecutive years.

Cacao has been planted and cultivated since the early days of the colony. In the years immediately following the abolition of slavery

the planters turned their attention to the raising of this product and by 1870 1,000,000 pounds were being exported annually. During the next decade the production doubled, and it continued to increase steadily until 1895, when 9,000,000 pounds were exported. This was the record crop and later years witnessed a steady decline, the total for 1912 being only about 2,000,000 pounds. In 1915 the production was less. The United States, the principal purchaser of the cacao, bought only \$202,405 worth in 1915, as compared with \$355,347 in 1914 and \$440,086 in 1913.

Coffee was once a great crop and it is recorded that near the end of the eighteenth century about 400 coffee plantations existed, producing annually more than 12,000,000 pounds. Lack of labor, following the abolition of slavery, has practically eliminated coffee as an important product, the present annual crop averaging less than 500,000 pounds.

Cotton, like most of the other products mentioned, was once an important crop, about 3,000,000 pounds having been the annual production 100 years ago. Practically none is grown at the present time and absolutely none exported, shipments having ceased a score of years ago.

Balata gathering, like most other industries, shows signs of declining. For a while it took first place among the colony's industries, but general neglect of the trees has caused a decrease in the amount exported. The introduction of better methods would awaken the industry.

Rice cultivation, unlike other fields of activity, is showing steady progress. The colony is, however, still purchasing large amounts of the product, mostly from British Guiana. Bananas are also raised and were once sold to the United Fruit Co. Following the cancellation of the contract with that company the production commenced to fall off, although a small quantity is occasionally shipped to Europe.

GOLD MINING.

Gold has been mined for a long time in Dutch Guiana. In 1876 a large discovery was made and there was a general rush to the field. During the 10 years to 1914, the amount of gold produced consistently declined, but in 1915 there was an increase in the production and nearly \$800,000 of the bullion was exported to the United States. A large number of European companies have invested in the gold mines, but few attempts where machinery was used were successful. Those entering the field should use great caution.

UNDEVELOPED RESOURCES—FACTORS RETARDING DEVELOPMENT.

There are in Dutch Guiana immense areas of forest, practically untouched and awaiting the investment of capital. Lack of transportation facilities hampers the development of the timber industry. Other than the somewhat uncertain rivers there are no suitable means of transport, as no roads have been cut through these forests. The railway, although it serves a useful purpose, touches only a small portion of the forest belt. Behind these forests, as in British Guiana, are fine grassy savannahs, capable of feeding many thousands of

cattle. These lands likewise await means of transportation. Large untouched mineral resources are also believed to exist in the interior.

It is stated that oil has been located in three places, as follows: (1) On the Surinam River, 6 miles below Kabele Station, on the railway about 97 miles from Paramaribo; (2) on the Marowijne River, 100 miles above Albina; and (3) between the Surinam River and the railway, 48 miles above the head of deep-water navigation. The deposit found on the Marowijne River is said to offer the best prospects. There have been no developments as yet.

Dutch Guiana is certainly rich in undeveloped resources, despite the fact that the colony has not made any considerable progress since the days of the abolition of slavery. Absence of proprietors from the country and lack of sufficient labor have had much to do with this. East Indian coolies, as in British Guiana, have been brought to the colony under indentures for a term of years. There is, it is stated, not enough labor in busy seasons and far too much in dull seasons. The high cost of immigration and maintenance of the coolies adds considerably to the labor cost. The Dutch colonial government has for some time past been studying the general situation in Dutch Guiana, and it is hoped that the general improvement in conditions occasioned by the rise in sugar will be of a permanent character and that the field will again prove attractive for settlement and the investment of capital.

FRENCH GUIANA.

French Guiana, although rich in tropical wealth, has never assumed importance. It is about one-third the size of France and contains a population of about 50,000, a considerable portion of which consists of convicts and others deported from France or from various French colonies. In the early days of the colony various attempts were made to settle and develop it, but owing in most cases to mismanagement and lack of knowledge concerning methods to be followed in tropical lands, these attempts generally resulted in failure. To-day a vast proportion of the interior remains clothed in virgin forest and unexplored. Cayenne, at the mouth of the River Oyack, is the capital and only important city.

Gold is the important product of French Guiana, its production generally exceeding \$2,000,000 per annum. There are about 225 claims and concessions being developed, many of them being worked by the paroled convicts living in the gold-bearing districts. There is doubtless a considerable amount of undiscovered gold in the interior, awaiting roads and other means of access. Phosphate rock is practically the only other mineral, and this is shipped abroad in small quantities.

Forest products are next in importance to gold, and a large quantity of rosewood and extract of rosewood is annually shipped, while smaller amounts of various hardwoods and some balata gum are also sent abroad.

Traces of petroleum have been discovered some distance southeast of the Marowijne River. There are no indications as yet that any extensive development will be possible.

Other products of importance exported are vegetable oils (of which a comparatively large quantity is obtained), cacao, and a few domestic animals. Little or no sugar is grown in French Guiana.

French Guiana has no public debt. Railways have been talked of as a means of development of the interior, and one will probably be pushed inland in the not distant future. In October, 1913, a concession was granted for the construction of a line into the interior to connect the basins of the rivers Camopi, Approuague, Mana, and Inint. There is telephone communication between Cayenne and the interior, reaching various important points.

Banking facilities are provided by the Bank of Guiana, established in 1849. This bank, located in Cayenne, has a capitalization of 600,000 francs and reserves of 535,865 francs. The 500-franc shares of the institution were quoted in Paris in May, 1918, at 1,005 francs. The dividend from 1917 business was 20½ per cent, as compared with 16 per cent for 1916 and 8½ per cent for 1915.

There are several French companies interested in the colony, mostly in mining, local shipping, exports and imports, timber producing, etc. One of the largest companies in the field is the Société Française de Navigation et de Transports de la Guyane, operating coastal and river steamers, launches, etc. Its capitalization is approximately 400,000 francs and its head office is in Paris.

PARAGUAY.

INTRODUCTION.

Paraguay, a land of rich but undeveloped resources lying between northeastern Argentina and the southern portions of Brazil and Bolivia, has an area estimated at 171,000 to 196,000 square miles and a population probably in excess of 800,000. The profile of the land is that of a plain surmounted by low mountain ranges, mostly lying to the eastward, the country being covered partly with fine forest areas and partly with rolling grassy plains sufficient in area for the sustenance of countless herds of cattle. Fine farming and fruit-raising country offers opportunities for settlement and development. The climate, though at times quite warm, may be said to be healthful.

Paraguay, though better provided with means of outside communication than in the past, suffers from an almost absolute lack of internal communications. The one railway in the country covers only a limited area, and roads, except near the main centers of population, are practically nonexistent. Neither capital (so badly needed) nor immigration has been attracted to the land, although the Government is doing what it can to attract settlers by paying their passage from Buenos Aires, giving them land and loaning them portions of their necessary capital without interest charges.

Asuncion, the capital of Paraguay, has a population of 90,000 and lies at the junction of the Paraguay and Pilcomayo Rivers. The city has direct rail and water communication with Buenos Aires, most of the traffic being by water. It is the chief city and port of the Republic, has a number of parks, an electric tramway service, etc.

There are several other cities and towns of moderate importance in the country, the most important being Villa Rica, Paraguari, Villa Concepcion, and Encarnacion. These cities are mostly located along the Paraguay Central Railway (of which Villa Encarnacion is the terminus) and have populations varying from 13,000 to 23,000.

GOVERNMENT LOANS AND FINANCES.

That Paraguay should have had financial difficulties during its existence as a Republic is not a surprising fact. The great war that ended with the death of President Lopez in 1870 left the country destitute of men and money, and it does not seem surprising that the two 8 per cent loans contracted 1871 and 1872, £1,000,000 sold at 80 per cent and £2,000,000 at 85 per cent, should have gone into default (1874). About £1,494,600 of these two loans was purchased by the Government for cancellation. Holders of the remaining £1,505,400 bonds received £850,000 in 2-4 per cent bonds and 2,177,344 acres of public land of the best description.

A company known as the Paraguay Land Co. (name afterwards changed to the Anglo-Paraguayan Land Co.) was formed to sell or develop this land, which had been divided among the bondholders in the proportion of 145 acres to each £100 of unpaid coupons. Warrants of £100 each had been issued to cover each 145 acres of land, and these were exchanged for £10 in shares of the land company, which was capitalized at £250,000. The land company also issued £61,710 5 per cent debentures, the funds to be used to develop the properties. These properties have since been disposed of and the company liquidated.

In 1892, following a period of depression throughout the Republic; interest payments were not met. In 1896 an agreement was made between the bondholders and the Government whereby interest payments commencing with the July, 1896, coupon would be at a rate of 1 per cent for three years, $1\frac{1}{2}$ per cent for three years, 2 per cent for three years, $2\frac{1}{2}$ per cent for the next two years, and 3 per cent thereafter. It was agreed that—

(1) The arrears coupons from July, 1892, to January, 1896, would be funded into bonds at par bearing the above rates of interest.

(2) A sinking fund of $\frac{1}{2}$ per cent would commence operation in January, 1900.

(3) As security for the loan the State was to assign the export duties on yerba mate while reserving the right to increase, diminish, or suppress them; in the latter case some other tax was to be assigned for the service of the debt. One-twelfth part of the sum required for the interest and sinking fund was to be placed in the hands of the bondholders' agent at Asuncion on the first day of each month. In the event of any surplus being earned from the yerba duties, this sum was to be credited to sinking fund for the amortization of bonds.

(4) In the event of the monthly payment not being made for the period of 12 months, the bondholders were to recover all their rights to interest rates, etc., under the agreement covering the bond readjustment made in 1885.

Following the outbreak of the European war, the country faced a severe crisis, which it met in the best manner possible under the circumstances. Exchange conditions and the difficulties in making remittances were partly the cause of the delay of several weeks in making the payment of the July, 1915, coupon, payment on which was made with interest at 6 per cent on August 23, 1915. The January, 1916, and July, 1916, coupons were paid with fair promptness. The coupon due January, 1917, was not met on date of payment. Although some of the industries of the country, particularly cattle raising, have been fairly successful, the sources of revenue for the Government have continued considerably below normal. Imports, which amounted to \$8,119,997, United States currency, in 1913, dropped to \$2,405,888 in 1915, the lowest total in many years. The figure for 1916 was \$4,679,033.

Including bonds issued for principal and interest, a total of £994,600 was issued of the bonds just discussed. The sinking fund began operation in 1900, and from that date to 1914 purchased bonds as follows:

Years.	Amount of bonds redeemed.	Average cost.	Years.	Amount of bonds redeemed.	Average cost.
		<i>Per cent.</i>			<i>Per cent.</i>
1900.....	£13,100	16	1908.....	£14,200	50
1901.....	18,700	21½	1909.....	18,300	50½
1902.....	14,350	27	1910.....	19,500	54½
1903.....	25,200	31	1911.....	20,300	55
1904.....	10,100	34	1912.....	21,000	56
1905.....	21,100	46	1913.....	22,200	56
1906.....	10,600	48	1914.....	11,200	57½
1907.....	19,300	49	1915-16.....	None.	.....

In addition to the above amounts, £10,100 (cost 23½ per cent) and £6,000 (cost 25 per cent) bonds were retired during 1901 and 1902 from surplus revenues of the export duties on yerba mate. Through sinking funds which were continuously operated until the outbreak of the European war, the total amount of the external bonds has been reduced to £719,400. The table just given indicates the steady advance in the value of Paraguayan bonds. It also shows the gradual improvement in the financial and economic condition of the inland Republic prior to the European war. The highest price reached by the bonds was 59 per cent, shortly before the outbreak of the war. At that price the yield as an investment was only slightly in excess of 5 per cent. At the closing of the London Stock Exchange on July 27, 1914, the price was 57 per cent. In 1916, owing partly to the war-time condition of the London market, the price declined considerably below that figure, and at the close of 1916 was about 43 per cent.

There are no issues of internal bonds outstanding, other than those held by the Paraguay Central Railway (which see). The Republic during 1912 contracted from the Banco de la República a loan of \$500,000 at 9 per cent, which, however, has since been reduced to a small amount. There is a small floating debt, as well as an issue of \$115,000,000 paper currency.

The Republic has authorized a loan of \$5,000,000 United States gold to take care of external and internal debts, for a general financial rehabilitation, and for general development purposes.

The exchange situation in Paraguay is a very difficult one, the paper currency being subject to wide fluctuations. For a considerable period before the breaking out of the war, exchange remained fairly steady at the rate of 1,500, at which rate the paper peso was worth approximately \$0.06 United States currency. During the financial depression that Paraguay experienced just before the beginning of the struggle in Europe, the currency began to depreciate, reaching 2,100 per cent, or less than \$0.05 United States currency, in July, 1914. In 1915 the Government found it necessary, owing to conditions then existing, to issue \$50,000,000 paper, increasing the amount in circulation from \$65,900,000 to \$115,000,000. The exchange rate reached its highest point in July, 1915, when it stood at 4,200, by which the paper peso was equal to about \$0.024 United States currency. At the close of 1916, the paper peso was worth, roughly, \$0.035. The question of exchange has engaged the attention of the Paraguayan Government, and in 1916 it adopted a scheme with which to meet the situation. The basis of the plan was that all exporters should declare the gold value of their exports and buy

from an exchange bureau established by the Government paper money at a fixed rate, thereby leaving the gold in the country for circulation. This plan practically put an end to fluctuations in exchange and improved general business conditions throughout the country.

BANKS.

Banking development in Paraguay is in its infancy, and in consequence there is not much to relate concerning it. There are in the Republic six banks of various descriptions. These banks will be described briefly:

Banks.	Capital.		Reserves.	
	Gold pesos.	Paper pesos.	Gold pesos.	Paper pesos.
Banco de la República.....	4,000,000		1,215,447	
Banco Mercantil de Paraguay.....		20,000,000		18,000,000
Banco Agrícola del Paraguay.....		34,590,097		
Banco de España y América.....	629,244		17,527	
Caja de Crédito Comercial.....		594,300		102,102
Banco Constructor del Paraguay.....		1,466,000		Not stated.
Total.....	4,629,244	56,650,397	1,232,974	18,102,102

The Banco de la República is the most important bank in the country. It is capitalized, as stated above, at 4,000,000 gold pesos, and may be said to be a semigovernmental institution. The reserves, as stated above, were 1,215,447 gold pesos in 1915, as compared with 1,164,169 in 1914, 274,839 in 1913, 199,087 in 1912, 133,657 in 1911, 70,629 in 1910, and 27,650 in 1909. Deposits amounted to 525,372 gold pesos and 38,662,440 paper pesos; deposits in the savings bank, or caja de ahorros, amounted to 85,757 gold pesos and 7,171,994 paper pesos; loans and discounts totaled 4,642,472 gold pesos and 20,179,227 paper pesos. Dividend payments have not been large, the maximum rate being $8\frac{1}{2}$ per cent, paid in 1913. Current funds amounted to 724,886 gold pesos and 26,071,886 paper pesos. The Banco Francés del Río de la Plata, of the Argentine Republic, is largely interested in this institution.

The Banco Mercantil del Paraguay is the oldest institution of its kind in Paraguay. Its deposits are the largest of any of the banks, amounting to 570,311 gold pesos and 64,283,065 paper pesos in the regular banking institution and 135,856 gold pesos and 20,815,032 paper pesos in the Caja de Ahorros. Loans and discounts totaled 2,665,121 gold pesos and 54,914,601 paper pesos. Current funds totaled 7,400,000 paper pesos. The Banco Mercantil del Paraguay maintains branches in the more important cities of the Republic. It acts as local agent for the Corporation of Foreign Bondholders, of London, which represents the holders of the external bonds of Paraguay and collects and remits funds for the service of the loan. Dividends in past years have reached as high a rate as 20 per cent, but in recent years rates have been lower. The fact that the bank's business is conducted wholly in Paraguayan paper has affected its business during the past three years. However, the bank, partly at the ex-

pense of dividends, has increased its reserve from 7,500,000 paper pesos in 1912 to 18,000,000 paper pesos at the beginning of 1916. The amount of business handled by the bank during 1915 was 3,923,788,864 paper pesos, which at the average low rate of exchange for 1915 was considerably less in value than the business of 1913 and 1914.

The Banco Agrícola del Paraguay was formed to organize and assist the general agricultural and industrial development of the Republic. Loans outstanding at the beginning of 1916 amounted to 17,175,632 paper pesos and 14,989 gold pesos; 12,102,613 pesos of these loans were made for agricultural purposes and the remainder mostly for industrial and building purposes. The bank's deposits totaled 2,678 gold pesos and 833,660 paper pesos. The total of loans and discounts was 33,996 gold pesos and 26,993,992 paper pesos, including 14,324 gold pesos and 9,247,760 paper pesos current funds deposited in other banks. The present capitalization of the bank, 34,590,097 pesos, compares with 15,606,359 pesos in 1914.

The Banco España y America is capitalized (1915) at 629,244 gold pesos, this figure comparing with 615,868 in 1914 and 526,592 in 1913. Deposits in 1915 totaled 72,405 gold pesos and 6,194,362 paper pesos, as compared with 59,992 gold pesos and 3,763,708 paper pesos in 1914. Deposits in the Caja de Ahorros in 1915 totaled 30,067 gold pesos and 4,772,520 paper pesos, as compared with 37,384 gold pesos and 1,832,206 paper pesos in the preceding year. Loans and discounts amounted to 86,787 gold pesos and 9,576,288 paper pesos. The business handled by the bank amounted to 373,423,385 paper pesos, as compared with 32,656,492 paper pesos in 1914, which was practically its first complete year of operation. The capitalization may be increased to 2,200,000 gold pesos.

The Caja de Crédito Comercial is a small institution, compared to the other banks. A general banking business is handled. The present capital, 594,300 paper pesos, compares with 524,200 paper pesos in 1908-9. Deposits amount to 303,688 paper pesos, in addition to 50,137 pesos in the Caja de Ahorros. Loans and discounts totaled 1,043,751 paper pesos, and the general business for the year 1915 was 7,466,002 pesos.

The Banco Constructor del Paraguay carries deposits amounting to 126,500 paper pesos, not including 109,853 paper pesos in the Caja de Ahorros. Loans and discounts totaled 2,963,694 paper pesos. The paid-in capital of the bank is 1,466,000 paper pesos. The bank makes loans for building purposes, does an insurance, commission, export, and import business, and performs, in addition, the usual functions of a bank.

INSURANCE COMPANIES.

In the year 1916 there were two insurance companies in Paraguay under local ownership. These were La Paraguaya, with a capitalization of 500,000 paper pesos, and La Nacional, with a capitalization of 1,000,000 paper pesos. Both of these companies do a general insurance business. The former company reported collections during the year to the amount of 368,432 paper pesos, and payments on policies and taxes of 47,840 pesos. Accumulated funds amounted to 1,448,499 paper pesos. La Nacional reported collections to the amount of 892,608 paper pesos and payments of 608,064 paper pesos. Accumulated funds totaled 1,296,862 paper pesos.

RAILWAY DEVELOPMENT.

The history of railway development in the Republic of Paraguay centers around one system, the Paraguay Central Railway. The line dates its existence from the year 1859, when the Government began its construction with the intention of carrying it from Asuncion as far as Villa Rica, 96 miles. The line was continued as far as Paraguari, about 50 miles, prior to the outbreak of the war against Argentina, Uruguay, and Brazil.

In 1889 the Paraguay Central Railway Co. was formed in England and purchased the line from the Government, agreeing to extend it to Villa Rica and later to continue it to Villa Encarnacion, opposite Posadas, Argentina. The line to Villa Rica was completed at the close of 1889, and a further 60-mile extension was completed in 1891. The final extension to Villa Encarnacion was put in service in 1911. In October, 1913, an extension of the Argentine Northeastern Railway was completed to Posadas and through passenger-train service established between Buenos Aires and Asuncion. In order to make direct connections it was necessary to change the gauge of the Paraguay Central Railway from 5 feet 6 inches to 4 feet 8½ inches. The connection with Argentina is afforded by means of train ferries. Two passenger trains a week, carrying through sleeping cars, are maintained in each direction between the two capitals.

The capitalization of the railway, which was increased considerably following the change in gauge, consists of £600,000 prior lien debenture stock, bearing interest at the rate of 6 per cent per annum, £500,000 6 per cent three-year notes, £1,300,000 5 per cent debenture stock, and £562,930 ordinary shares of £10 each. A part of these funds was invested in the acquisition and electrification of the Asuncion Tramway, Light & Power Co.

In October, 1914, a receiver was appointed for the company and thus far no plan of reorganization has been effected. At the same time a receiver was appointed for the Asuncion Tramway, Light & Power Co.

Earnings of this railway covering a period of years have been as follows (figures expressed in pounds sterling):

Calendar years.	Gross earnings.	Net earnings.	Miles operated.	Number of passengers carried.
1906.....	£55,208	£22,569	155	975,477
1907.....	71,452	24,602	155	1,002,690
1908.....	86,208	35,581	155	962,250
1909.....	77,446	32,417	155	603,231
1910.....	97,126	48,337	156	518,709
1911.....	120,023	51,421	168	470,686
1912.....	111,983	44,509	232	394,660
1913.....	146,511	65,937	232	532,807
1914.....	156,240	66,166	240	623,368
1915.....	100,774	39,887	255	564,941
1916.....	125,923	56,300	255	554,000

It is stated that for the year ended June 30, 1918, the gross earnings (preliminary totals) were £154,000, an increase of approximately £17,000 as compared with 1916-17. Freight tonnage for

1915-16 amounted to 161,000 tons, as compared with 135,482 in 1914-15 and 155,911 in 1913-14. Traffic in live stock is increasing. In 1905-6 only 278 animals were carried; in 1908-9 the total was 3,290; in 1911-12 2,299 were carried; in 1912-13 the number increased to 10,619 and the receipts were £639; in 1913-14 and 1914-15 the totals were 14,097 and 17,057 and the receipts £3,113 and £4,517, respectively. In 1915-16 the receipts from the cattle traffic jumped to £11,600. Rolling stock in service June 30, 1915, consisted of 23 locomotives, 63 passenger cars, 516 freight cars, and 9 other cars.

The company plans, if possible, following the readjustment of its finances, to build a branch to the Brazilian boundary near the junction of the Parana and Iguassu rivers, to join an extension of the São Paulo-Rio Grande Railway, which will open a new and shorter route from the Atlantic Ocean to Asuncion.

As of June 30, 1915, the company carried among its assets £175,038 Government loans outstanding. Since that date the Government has paid the company £75,000 in internal bonds bearing interest at 6 per cent per annum.

The international traffic between Argentina and Paraguay is slowly developing. A total of 2,383 passengers were carried during 1915, as compared with 3,474 in 1914; the 1916 total was larger.

As previously stated, the Paraguay Central Railway is the only line of importance in the Republic. The following table indicates the various railways in the country, their mileage, gauges, etc.:

Railway lines.	Length.		Gauge.
IN EASTERN PARAGUAY.			
Central of Paraguay, main line, Asuncion to Encarnacion ^a	<i>Kilo- meters.</i> 370	<i>Miles.</i> 230	4 feet 8½ inches.
Central of Paraguay, Borja to Tacuaras line ^a	55	34	Do.
Concepcion to Horqueta Railway (Guggiari, Gaoni & Co., owners ^b	44	27	0.75-meter.
Quebrachales Fusionados Puerto Max (line to river) ^c	14	9	Do.
Puerto Ybapolo timber line ^c	24	15	Do.
IN WESTERN PARAGUAY.			
Puerto Galileo line ^c	24	15	Do.
Campos & Quebrachales Puerto Sastre Railway ^c	44	27	Do.
Quebrachales Fusionados Puerto Maria ^c	40	26	Do.
Carlos Casado (Ltd.) ^c	50	31	Do.
New York & Paraguay Co. ^c	41	25	Do.
Cia. Forestal del Paraguay ^c	15	9	Do.
Maria Luisa ^c	5	3	
Puerto Guaraní line.....	26	16	0.766 meter.
Total.....	752	467	

^a Common carriers, handling general traffic in freight and passengers.

^b Primarily a lumber railway; handles general traffic in freight and passengers also.

^c Not constructed for general traffic; built to handle quebracho logs or lumber.

The total railway mileage in Paraguay, as shown above, is 467, of which about 291 miles represent common carriers. None of the lines in the Región Occidental, or western Paraguay, are built for general service, and none of them make public any statement of earnings and expenses.

There is little doubt that Paraguay will, possibly within the next decade, have a much larger railway mileage. Plans have been laid, although the project has been delayed for a time, to construct a line northwesterly across the Chaco to Bolivia, opening to the world an immense area of undeveloped country and bringing forth im-

mense forest wealth. Once this and other lines are constructed, the country will enjoy far greater prosperity.

PUBLIC UTILITIES.

Thus far development along the line of public-utility enterprises has been of an extremely limited nature. Practically the only existing company in the field is the Asuncion Tramway, Light & Power Co. (Ltd.), controlled by the Paraguay Central Railway. This latter company has made loans to the Asuncion Tramway, Light & Power Co., to the amount (including interest) of £87,685, and has invested, in connection with purchase, etc., the sum of £229,359, which has been reduced to approximately £207,000. The consideration for this outlay on the part of the Paraguay Central Railway consists of £119,850 cash or £144,398 debentures, at the option of the tramway company; £15,624 cash; £240,000 ordinary shares of £1 each; 135,274 preference shares of £1 each. The railway is obligated to expend £9,465 more, for which it will receive preference shares. The nominal capital of the tramway company is 3,000,000 gold pesos.¹

On October 16, 1914, a receiver was appointed for the Asuncion Tramway, Light & Power Co. This company was unable to meet the interest on advances and debentures issued to provide funds for electrification purposes. Operating results have been below expectations, partly through exchange conditions.

During the years 1913 to 1915 earnings have been reported as follows:

Items.	1913	1914	1915
Passenger traffic.....	£22,951	£33,195	£24,229
Freight traffic.....	766	627	649
Electric lighting.....		4,331	16,139
Other.....	2,301	1,630	1,030
Total receipts.....	26,018	39,783	42,047
Operating expenses.....	18,284	37,202	39,615
Net earnings.....	7,734	2,581	2,432

Earnings for 1916 were slightly in excess of those for 1915.

During 1915 the tramways carried a total of 3,102,145 passengers, as compared with 2,850,955 during 1914. There were also carried, during 1915, 8,043,102 pounds of freight (5,080,461 pounds in 1914) and 670,212 pounds of baggage (745,445 pounds in 1914). The length of the system is 43 kilometers (27 miles), of which 28 kilometers are operated by electricity, 11 kilometers by steam, and 4 kilometers by mules. Employees number 414. There are in service 19 electric cars, 1 steam car, 5 horse cars, and 8 freight cars.

MINING.

Mining in Paraguay may be spoken of in the future tense. Thus far the mineral wealth of the country has remained practically a

¹ EDITOR'S NOTE.—Information received as this monograph was going to press indicates that a considerable portion of the assets of this company has now been acquired by the Cia. Americana de Luz y Tracción, controlled by the Italian, Swiss, and Argentine capitalists that own the Cia. Italo-Argentina de Electricidad, of Buenos Aires.

sealed book. Among the mineral products known to exist may be mentioned manganese, oxide of iron, graphite, basalt, arsenic rocks, agate, marble, etc. Hopes are entertained that the mining of manganese will some day be an important industry in the Republic. This, however, is an industry purely of the future, inasmuch as the deposits are now inaccessible to any market of importance. There are at present no mining companies of any importance in Paraguay.

QUEBRACHO AND OTHER FOREST INDUSTRIES.

The quebracho or "ax breaker" is one of the valuable trees found mostly in the Chaco districts of Argentina, Brazil, and Paraguay. In addition to containing tannin, an extract used extensively in the tanning industry, the timber, which is one of the hardest known, is used extensively in the manufacture of railroad ties. Quebracho ties are to be found in Argentina, Brazil, Paraguay, Uruguay, and even in European countries. The quebracho may be cultivated, notwithstanding its extremely slow growth, but it is usually gathered wild. There are said to be larger amounts of the wood in Paraguay than in the neighboring Republics. The first recorded use of quebracho for tanning purposes was in the year 1875, when it was successfully experimented with in France. In 1889 a factory for its extraction was established at Puerto Galileo, Paraguay, this being the first factory of its kind in South America. The concern is known as the Quebrachales y Estancias Puerto Galileo. The principal companies engaged in the industry in Paraguay are the following:

Companies.	Capital.	Area of properties.		Railway mileage.	Production, 1915.
		<i>Gold pesos.</i>	<i>Hectares.</i>	<i>Acre.</i>	<i>Tons.</i>
Campos y Quebrachales Puerto Sastre.....	1,488,000	225,000	555,985	28	4,800
Sociedad Forestal de Puerto Guaraní.....	583,000	78,745	194,581	17	3,228
Compañía de Tierras Carlos Cascado (Ltda.)..	1,500,000	2,437,000	6,021,936	31	6,257
Quebrachales y Estancias Puerto Galileo.....	1,000,000	187,500	463,320	15	1,074
Quebrachales Fusionados.....	^a 770,000	646,708	115,417	9	.....
New York & Paraguay Co.....	2,000,000	337,500	833,976	26	None.
Total.....	7,341,000	3,312,453	8,185,215	126	15,359

^a This is an Argentine company controlled by the Forestal Land & Timber Co., of London. Its official capitalization is \$7,000,000 Argentine paper.

^b Does not include properties at Puerto Maria, regarding which data could not be obtained.

The total capacity of annual production of the above properties is more than 31,200 tons.

Among various other companies controlling quebracho properties or otherwise interested in the industry may be mentioned (1) La Industrial de Nueva Italia, with an authorized capital of 100,000 paper pesos; (2) the American Quebracho Co., with an authorized capital of 3,000,000 gold pesos; (3) La Forestal del Paraguay, with an authorized capital of 264,000 gold pesos; and (4) La Rural Belga Sud-America, with an authorized capital of 226,000 gold pesos. La Forestal del Paraguay operates about 10 miles of 0.75-meter gauge railway to its properties. The Quebrachales Fusionados properties are located in the eastern part of the Republic; most of the other properties are in western Paraguay. Of

the 583,000 gold pesos shares of the Sociedad Forestal de Puerto Guarani, 220,000 pesos were issued during the year 1915.

The total exportation of quebracho extract during 1913, 1914, and 1915 amounted to 25,840,267 pounds, 28,021,150 pounds, and 40,361,990 pounds, respectively. Of the total exported in 1915, 40,334,322 pounds, valued at \$1,098,474, were shipped to Argentina.

For a further discussion of the quebracho industry see the chapter on the Argentine Republic, page 84.

Many other varieties of timber exist in the great forest areas of Paraguay. The development in this field is in its infancy. During the past few years, however, several concerns have been established with fair-sized amounts of capital invested. When better communications and lower freight rates are established there will be wonderful opportunities to develop the softwoods of the country for the purpose of making pulp. There is an almost limitless supply of softwood trees, which, in time to come, will have considerable commercial value.

An important tree in Paraguay is the curupay, a hardwood, used commercially in South America to make railway ties. This timber is extremely hard and durable and will not decay in water. It is somewhat similar to the quebracho, since its bark may be used for tanning purposes. In this respect, however, it does not equal the quebracho. Several other hardwood trees, not unlike the curupay, are found in the forests. Their bark is used locally for tanning purposes. Numerous other hardwoods and semihardwoods are found, suitable for high-class furniture and cabinetmaking. A tree locally known as the petereby, somewhat like English walnut, is found in abundance and has been employed in the manufacture of railway coaches used in Argentina and Uruguay. *Lignum-vitæ*, a tree of considerable commercial value, is also a native of the Paraguayan forests. Only small quantities of it have thus far been shipped from the country. Laurel and cedar are also fairly abundant. Scores of varieties of other trees exist, and some of them are used locally.

The vast forests of Paraguay will some day be sources of great wealth to the inland Republic. The total value of the exports of forest products in 1915 amounted to 1,730,692 gold pesos, including quebracho extract to the value of 1,098,474 gold pesos. Practically all of the exported forest products went to Argentina and Uruguay. Customs receipts from the exportation of forest products totaled 14,402 gold pesos and 956,015 paper pesos, not including quebracho extract. Among the companies interested in the timber industry may be mentioned the following:

Companies.	Capital authorized.	Capital invested.
Timber Yuty Co. (Ltd.).....	<i>Gold pesos.</i> 250,000	<i>Gold pesos.</i> 125,000
La Rural de Yegros.....	160,000	160,000
La Industrial Paraguaya *.....	\$5,000,000	\$3,464,120
La Italo-Paraguaya.....	200,000	200,000
Montes y Estancias San Jose.....	150,000	115,000
Campos y Bosques de Loreto.....	200,000	40,000
Cia. de Tierras Carlos Cascado (Ltd.).....	1,500,000	675,000
Industrial & Commercial Co. of Northern Paraguay.....	1,500,000	500,000

* See description of company under heading of "Yerba-mate industry."

In addition to the above list, several quebracho companies previously mentioned are interested in the general timber industry. Certain of the above companies have been noted as being interested in cattle raising, etc. Another important concern in the timber industry in Paraguay is Guggiari, Gaoni & Co. In addition to its extensive timber interests, this concern operates a railway line 29 miles in length extending from Concepcion to Horqueta. This line, in addition to handling the lumber, does business as a common carrier.

THE LIVE-STOCK INDUSTRY.

The live-stock industry, particularly that branch pertaining to cattle, is certain to have a great future in Paraguay. There are enormous areas capable of providing food for millions of cattle, and it seems likely, once cheaper transportation is obtainable, that large investments will be made in this field. The estimated number of live stock in the Republic at three different periods has been as follows:

Live stock.	1877	1899	1915
Cattle.....	200,525	2,283,089	5,249,043
Sheep.....	6,668	214,058	600,000
Horses.....	21,140	182,790	478,000
Mules and asses.....	2,799	7,557	35,000
Hogs.....	3,026	23,887	61,000
Goats.....		32,334	87,000

The total number of cattle, as stated above for the year 1915, compares with other important cattle-producing countries, as follows:

Countries.	Number of cattle.	Approximate population.	Number of cattle per 1,000 inhabitants.
Paraguay.....	5,249,043	1,000,000	5,249
Uruguay.....	8,192,602	1,226,000	6,518
Argentina.....	29,120,000	7,500,000	3,882
Brazil.....	30,705,000	22,300,000	1,376
Australia.....	11,819,000	4,750,000	2,488
United States.....	56,592,000	95,875,000	590

The number of cattle per square kilometer in Paraguay is 11.8, as compared with 41.6 in Uruguay, 9.7 in Argentina, 3.5 in Brazil, 1.5 in Australia, and 6 in the United States.

Covering a period of six years, the exports of cattle, hides, etc., have been as follows:

Years.	Live animals exported.	Hides, skins, etc., exported	Percentage of total cattle.
1910.....	11	343,458	8.3
1911.....	137	302,512	7.3
1912.....	4,661	342,703	7.9
1913.....	36,564	398,048	9.3
1914.....	24,385	342,782	7.4
1915.....	29,509	340,692	6.4

The number of live cattle exported during 1916 was considerably larger than that during 1915.

The live-stock industry in the Republic has attracted considerable amounts of foreign capital. There follows a list of important companies interested wholly or partly in the raising and selling of live stock or otherwise identified with the live-stock industry:.

	Capitalization. Gold pesos.		Capitalization. Gold pesos.
La Ganadería Sacerello----	1, 000, 000	Fuerto Olimpo -----	500, 000
La Ganadería Paraguaya----	500,000	Cfa. Paraguaya de Tierras, Campos y Ganaderías----	1, 500, 000
La Ganadería Franco-Para- guaya-----	200, 000	Plantaciones y Criadores Girad -----	50, 000
Montes y Estancias San Jose -----	150, 000	La Ganadería Cancio Dean- dreis -----	140, 000
La Rural Española-----	300, 000	La Ganadería Piri-Puco----	100, 000
Campos y Bosques de Loreto-----	200, 000		

La Ganadería Paraguaya is controlled by the Paraguay Land & Cattle Co., incorporated in Maine, U. S. A., in 1913, and identified with the Farquhar-Pearson enterprises. The property covers 54½ leagues in the Chaco country, with two ports and about 14 miles of river frontage. The company also owns about 1,000 leagues of cattle lands in the interior of the Chaco. The 1,500,000 shares of the Paraguay Land & Cattle Co. are held mostly by the Argentine Railway, and are deposited as part collateral for the railway company's issue of 6 per cent notes. The Paraguay Land & Cattle Co. experienced difficulty in South America in renewing some of the unpaid installments of the purchase price of parts of its lands, and any renewals it might have been able to arrange would have drawn interest at as high a rate as 12 per cent. It was decided by the Argentine Railway note holders, in order to protect its collateral, to obtain a loan of £84,000, secured on the land and cattle properties, with a priority to the notes. The amount of the loan includes the commission and interest thereon, which items total 8 per cent, as compared with 12 per cent as above. The proceeds were used to meet the installments, when due, of the purchase price of the land and to meet further expenditures to carry on the business. The Paraguay Land & Cattle Co. reported a profit of £18,600—this, however, representing the increased value of the company's herds.

In addition to the above list of companies mention might be made of the New York & Paraguay Co., previously noted as a producer of quebracho. This concern has a large acreage of lands suitable for cattle raising and supporting a large herd of animals.

AGRICULTURE.

THE SUGAR INDUSTRY.

The sugar industry in Paraguay is growing in importance year by year and is likely to expand considerably in the future. The soil and climate are highly suitable for the production of cane. Until recently very primitive methods have been in use in both the cultivation and the manufacture of the product. An acre of land will produce, on an average, nearly 12 tons of cane under present conditions. Most of the labor on sugar plantations is performed by hand. Until recently the greater part of the sugar and sugar cane has been used

in the manufacture of industrial alcohol and of a native rum known as "cana." The production of sugar cane, sugar, alcohol, and "cana" during a period of six years has been as follows:

Years.	Cane.	Sugar.		Alcohol.		"Cana" (native rum).	
	<i>Tons.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Liters.</i>	<i>Gallons.</i>	<i>Liters.</i>	<i>Gallons.</i>
1910	15,417	834,000	1,838,655	130,000	34,342	42,525	11,234
1911	9,161	478,000	1,053,810	77,000	20,341	75,580	19,961
1912	19,837	849,800	1,873,488	217,000	57,325	257,710	68,079
1913	30,939	1,461,000	3,220,931	403,720	106,651	475,500	125,613
1914	46,107	2,559,000	5,641,584	415,200	109,684	53,350	14,093
1915	36,555	1,536,377	3,387,109	235,175	62,126	217,500	57,457

During the years 1910 to 1914, inclusive, sugar in amounts varying from 1,735,122 kilos (3,825,266 pounds) to 2,608,924 kilos (5,751,647 pounds) was imported. During 1915 the amount imported decreased to only 9,760 kilos (21,517 pounds). The average amount of sugar obtained from grinding and milling has varied from 4.3 to 5.5 per cent—an amount considerably less than that attained in Argentina (8 to 10 per cent), Brazil (9 to 14 per cent), Cuba (10 to 12 per cent), etc. This is due to the old-style machinery in use, the methods in vogue being, as stated, extremely crude. The recent advance in price and great demand for sugar has awakened the industry in Paraguay, and it is expected that large and increasing quantities will be exported to Argentina and the United States. Most of the sugar is produced in the Ybytymi district, although many sections of the Republic are said to be equally suitable for its growth. The Azucarera Villa Hayes, one of the largest producers, is located in the Chaco district. This estate produced during 1914, 271,000 kilos (597,453 pounds) of ground sugar and during 1915, 147,750 kilos (325,733 pounds). This company is capitalized at 80,000 gold pesos; shares totaling 160,000 pesos are authorized. The Azucarera Paraguaya is another important company engaged in the industry. Its capitalization is 300,000 gold pesos.

There are numerous distilleries throughout the country for the making of the "cana," etc. These are mostly very small and extremely crude.

THE YERBA-MATE INDUSTRY.

Yerba mate is a most important product of Paraguay, being raised in the eastern and central parts of the country. It consists of the leaves of a tree somewhat resembling an evergreen, which is from 15 to 25 feet in height. The leaves are bright green in color and originally were all gathered wild. In recent years, however, the trees have been cultivated with considerable success. Trees come to bearing after about 5 years and in 12 years begin to yield the maximum amount; generally 15 to 17 pounds per annum. It is generally estimated that between 10,000,000 and 12,000,000 persons in South America regularly use the drink, and its use is spreading throughout Latin Europe, and has even reached the United States. The wild yerba still exists in very large amounts, and there is no danger of an exhaustion of the supply. The tax gathered by Paraguay on the exportation of the yerba is used largely to provide funds for the service of the external loan.

At the close of the year 1915 there were 197 estates or concerns engaged in the production of the yerba. The production for the year amounted to 7,049,500 kilos as compared with 7,862,250 kilos in 1914. The Departments of Concepcion, Encarnacion, San Pedro, Ithi, and Caazapa produced practically all of this amount. Of the total raised in 1915, 4,709,213 kilos were exported. Among the companies engaged in its production and exploitation are La Industrial Paraguaya, capitalization 3,464,120 gold pesos, and Boettner & Gautier, "Yerbatero," capitalization 80,000 gold pesos. La Industrial Paraguaya is a Farquhar-Pearson enterprise, being controlled by the Argentine Railway. Its securities are largely deposited as collateral for the latter's 6 per cent notes. It earned a profit of £31,600 in 1916, which would have enabled the company to declare a small dividend, had not the funds been needed to pay off floating debt and for expansion and development purposes.

OTHER AGRICULTURAL PRODUCTS: TOBACCO, FRUIT, COFFEE, COTTON.

Eastern Paraguay is well adapted for agricultural pursuits. The Republic has been making every effort to attract immigration for the development of this field, and, as a result, several agricultural colonies of some size and importance have been established in the country. The war has put an absolute check on immigration, and consequently but little progress has been made during the past two or three years. The Government has established an up-to-date agricultural school and has appointed a number of trained inspectors to give practical lessons to those interested. The forest-cleared lands of the eastern uplands produce maize of excellent quality in abundance, and practically every grain thrives where cultivated.

The tobacco crop of Paraguay is a large source of national wealth. Cultivated mostly by small farmers, the product is sold to the exporter or to the local manufacturer of cigars and cigarettes. Paraguayan tobacco brings a good price abroad and is shipped in fair quantities to the Netherlands, Argentina, England, Denmark, Norway, Italy, and Uruguay. Small quantities of it have recently been experimented with in the United States. The Government has opened a department that classifies the grades of tobacco for export and has proved a considerable aid to the development of the industry. Exports of tobacco during recent years have been as follows (between 60 and 70 per cent of the national production is exported) :

Years.	Amount exported.		
	Bales.	Weight.	
		<i>Kilos.</i>	<i>Pounds.</i>
1908.....	51,340	5,034,657	11,099,506
1909.....	50,483	4,850,935	10,694,490
1910.....	59,424	5,622,803	12,396,145
1911.....	72,422	6,435,358	14,187,500
1912.....	45,454	4,001,892	8,822,871
1913.....	61,077	5,827,762	12,848,003
1914.....	59,258	4,648,648	10,248,524
1915.....	74,655	7,378,934	16,267,806

In the year 1901 the amount exported totaled 23,075 bales.

In recent years fruit growing for export has been carried on extensively. The orange, formerly an article of little commercial value owing to overproduction and lack of market, now brings good prices in the markets of Argentina and Uruguay, because of the fact that it ripens in Paraguay some weeks earlier than in the countries mentioned. The through railway route to Buenos Aires has greatly stimulated the industry, inasmuch as the railway management operates through trains with cars specially constructed for the oranges. The number of oranges exported during recent years has been as follows: 1910, 136,052,630; 1911, 129,722,910; 1912, 125,491,180; 1913, 168,040,040; 1914, 149,151,050; 1915, 216,996,750. Practically all other varieties of tropical and semitropical fruits grow in abundance.

Coffee has been successfully experimented with.

Cotton is grown in Paraguay, although not on an extensive commercial scale, owing principally to lack of labor in the various districts wherein the soil is adapted to its growth. A ready market is found for the product locally, inasmuch as the supply is far from equal to the demand.

Viticulture also holds promise, as an excellent variety of grapes is cultivated. Practically none of the vine products are exported.

MANUFACTURING AND COMMERCIAL ENTERPRISES.

Factories and mills are not numerous in Paraguay. The inland Republic as it exists to-day stands forth simply as a producer of raw materials. In only a few lines of manufacturing and commercial enterprise are any large amounts of capital invested. Some of the concerns, with their capitalization, are mentioned herewith:

Enterprises.	Character of business.	Capitalization.			
		Authorized.		Outstanding.	
		Gold pesos.	Paper pesos.	Gold pesos.	Paper pesos.
Molino Nacional.....	Flour mill.....	500,000	.....	500,000	.....
Cia. Industrial Meillecke.....	Boots and shoes.....	250,000	.....	250,000	.....
Cerveceria Nacional.....	Brewery.....	1,000,000	.....	700,000	.....
Sociedad Introdutora.....	Importers and exporters.....	100,000	.....	100,000	.....
Urrutia, Ugarte y Cia.....	do.....	200,000	.....	200,000	.....
Ruis y Jorba.....	do.....	1,000,000	.....	1,000,000	.....
Sebastian Brun.....	do.....	250,000	.....	250,000	.....
Federico Krauch y Cia.....	do.....	120,000	.....	120,000	.....
Perez y Sanchez.....	do.....	.....	2,400,000	.....	2,400,000
Jorge Casaccia.....	General merchandise.....	400,000	.....	400,000	.....
Cramer & Weber.....	Importers and exporters.....	100,000	.....	100,000	.....
Vierei Bros.....	Steamship line.....	500,000	.....	400,000	.....
Empresa de Transportes La Nacional.....	do.....	.....	1,000,000	.....	600,000
West India Oil Co.....	Oil, etc.....	100,000	.....	100,000	.....
Sociedad Anónima de Construtores.....	Building materials.....	.....	1,000,000	.....	1,000,000

SUMMARY OF INVESTMENTS IN PARAGUAY.

Recent estimates indicate that there is invested in the principal industries of the Republic, exclusive of railways and nonpublic enterprises, a total of about 25,000,000 gold pesos and about 75,000,000

paper pesos. During 1915 a total of 1,345,509 gold pesos and 16,142,599 paper pesos was invested in various undertakings. Great Britain has invested, it is estimated, about \$18,600,000 in Paraguay, this including a large majority of the external loan, most of the railway shares, the Asuncion Tramway, Light & Power property, cattle, yerba-mate, and quebracho companies, etc. France has a large number of shares in the principal banks, cattle interests, etc., and possibly has \$7,000,000 to \$8,000,000 gold in the country's enterprises. Argentina, Belgium, Germany, Italy, and the United States have also placed fair-sized sums in Paraguay. There are numerous opportunities for the development of the resources of the country. Thus far most of the enterprises in the field have been capitalized moderately, and for the next few years this class of enterprise will probably be the most successful.

PERU.

INTRODUCTION.

The Republic of Peru, with an estimated area of 460,000 square miles (subject to boundary settlements), contains an estimated population of 4,500,000. The sea frontage covers a distance of approximately 1,400 miles, and along the shores are numerous harbors and ports, many of the latter mere open roadsteads. Callao, Mollendo, Salaverry, Paita, Eten, Pacasmayo, Ilo, and Pisco are probably the most important of these ports and are the main outlets for the exported wealth of the country. The Republic may be divided roughly into three sections:

(1) The western lowlands, in which may be found all the Pacific ports, the cities of Lima, Trujillo, Piura, Catacoas, etc. This section of the country is the source of most of the agricultural wealth, as well as the petroleum production. In the southern part of the Republic are magnificent vineyards producing a splendid variety of grape and a number of kinds of wine much sought for on the Pacific coast of South America.

(2) The plateau lands of the central and western Andes, extending from the northern boundary to Lake Titicaca and lying from 7,500 to 14,000 feet above the sea. On this plateau or series of plateaus are located the cities and towns of Arequipa, Cuzco, Juliaco, and Huanacayo and the mines of Cerro de Pasco and Morococha. Most of the Republic's mineral wealth, developed and undeveloped, lies in this section. Oil has been found in the Lake Titicaca region. Wool, hides, and leather are shipped in large quantities, while in the warmer valleys and on the mountain slopes the Indians carry on their crude method of agriculture.

(3) The eastern slope and the lowlands, a thinly populated but rich section of the Republic. The eastern slope is capable of great agricultural development, when it is placed in railway communication with the outside world. Immigration is needed badly, and this will not come until eastern and western Peru are connected by railways. The eastern lowlands are overgrown largely with dense tropical forests; they are very warm and subject to heavy rainfall. Iquitos, 2,500 miles up the Amazon, is the main port for this vast area, and from it is shipped practically all of the rubber, which thus far is the only considerable source of wealth developed in this section. Mahogany, cedar, and other hardwoods, also dyewoods of considerable value, abound in these forests but owing to the lack of communication with the outside world are inaccessible for the present at least. Vegetable ivory is also found in these forests and in time will probably become an important source of wealth to the Republic. Prior to the war Germany took a very large percentage of this product, 40 per cent of the total shipments in 1911 going to Hamburg. The trade of the district adjacent to Iquitos in 1910 reached approximately \$30,000,000;

at present, owing to the war and the decline in the rubber trade, it has greatly decreased but is showing signs of a partial revival.

FOREIGN INVESTMENTS IN PERU.

As in the case of most Latin American countries, Great Britain has furnished by far the largest amount invested in Peru by any nation. An estimate compiled by the writer in 1916 placed Great Britain's investments in Peru at \$121,622,500 United States currency. This included external bonds, Peruvian Corporation bonds and shares, Lima city bonds, Northwestern of Peru Railway, various sugar estates, mines, etc. The United States, whose investors control the Cerro de Pasco mines, International Petroleum Co., and a few minor industries, comes next, with perhaps \$50,000,000 at stake. The Germans would rank third, although they have invested little in public companies. Their investments are limited to the Banco Aleman Transatlántico, some plantations (mostly sugar and cotton), and private mercantile ventures, which are rather numerous. Only a moderate amount of French capital has found its way to Peru. An estimate of \$200,000,000 would probably cover the aggregate foreign investment in this country.

GOVERNMENT FINANCES.

Owing mainly to the fact that the Government has not succeeded in obtaining a loan of \$15,000,000 United States currency for readjustment purposes, the country has as yet been unable to arrange for a consolidation of its various debts. The writer, in this compilation, is using the figures stated by the Minister of Finance of Peru on December 15, 1915, as presented by Consul General William H. Handley in his annual report for that year. This is probably the most comprehensive statement of the Republic's finances at present available. The position of the Republic at the present time is slightly better than on the date indicated below:

Classification.	Balance on Dec. 31, 1915.	Annual interest and amortiza- tion.
Internal debt:		
Consolidated loans (June 12, 1899).....	\$1, 877, 564	\$129, 480
Mortgaged deeds (since Dec. 17, 1898).....	346, 358	121, 663
Pensions, chaplaincies, with interest.....	135, 416	
Recognized credits (suspended since 1913).....	113, 631	
Puch & Co. credit (Oct. 10, 1910).....	632, 645	
Bonded debt:		
Salt loan (Emprestido de Sal; mostly held in Europe).....	5, 402, 649	408, 786
Peruvian S. S. Co. loans (2).....	2, 733, 611	255, 491
Grace & Co., syndicate loans (2).....	1, 505, 938	859, 382
Gildemeister & Co. loan.....	217, 785	153, 878
Bank obligations:		
Bank of Peru and London (advances).....	378, 110	37, 811
Joint loan from Bank of Peru and London, German Bank, and International Bank (Nov. 20, 1912).....	1, 760, 540	127, 335
Loans effected by the local banks and the Caja de Ahorros (Savings Bank), Aug. 20, 1914.....	2, 189, 925	322, 162
Loan from the German Bank (Mar. 26, 1915).....	875, 970	234, 078
Loan from the Popular Bank (June 4, 1915).....	124, 096	35, 038
Advance by the Caja de Depositos and Consignaciones (Jan. 27, 1913, and Jan. 23, 1914).....	184, 570	34, 065
Tax collecting company obligations:		
Loan of April, 1913.....	6, 058, 793	424, 115
Drafts for account of revenues of the company to June 30, 1915.....	966, 564	72, 491

Classification.	Balance on Dec. 31, 1915.	Annual interest and amortiza- tion.
Tax collecting company obligations—Continued.		
For manufacture of tol acco.	\$551,600	\$44,128
Advances on semimonthly payments (January to August, 1915)	318,387	31,838
Sundry loans:		
Fiscal Warehouse Administering Co. (Jan. 16, 1913, and Aug. 24, 1915)	145,995	30,172
Guano Administering Co. advance on product of company to December, 1915.	359,540	23,359
Peruvian Corporation, contract for pier at Salaverry (June 18, 1915)	77,864	.....
Floating:		
Schneider & Co., balance in favor of.	1,459,950	.....
Bondholders of the Lima to Huacho R. R.	364,988	.....
Peruvian Corporation, monthly payments stipulated in 1907 contract	389,320	.....
Treasury obligations, value in circulation	381,534	.....
Various treasury bills (January to August, 1915)	319,072	.....
International postal debts (from 1913 to date)	48,665	.....
Budget balances from 1908 to 1913	3,554,350	.....
Due on budget appropriations for 1914	624,375	.....
Due on budget appropriations for 1915	2,189,925	.....
Claims:		
French claims submitted to The Hague tribunal for decision	4,866,500	.....
RÉSUMÉ.		
Internal debt	3,419,440	251,142
Loans	10,195,110	1,677,538
Obligations to the banks	5,513,210	790,005
Obligations to the Tax Collecting Co.	7,891,830	572,222
Sundry loans	583,398	53,532
Floating debt	9,332,184	.....
Total	36,935,172	3,344,439
Claims	4,866,500	.....
Grand total	41,801,672	3,344,439

NOTE.—The above obligations are to be paid in part from the proceeds of the loan of \$15,000,000 that the Executive was authorized to contract in the United States.

The principal loan held externally is the Salt Loan (Emprestito de Sal), which bears interest at $5\frac{1}{2}$ per cent (February and August), and which is redeemable through amortization. The bonds are listed on the London Stock Exchange. The original issue was for \$5,838,000, the remainder having been retired. Drawings take place semiannually, in January and July, the redemption fund, $1\frac{1}{2}$ per cent per annum, being secured by the salt tax. The life of the loan is $28\frac{1}{2}$ years, dating from 1909. The bonds sell at about 90, yielding slightly more than 6 per cent. Their high and low prices since January 1, 1911, have been 102 per cent and 69 per cent.

The principal internal loan of Peru bears interest at 1 per cent per annum and sells at approximately Lp14. It has largely been retired. This issue and the "Deuda Nacional de Amortización" (quoted 13 @ 17) are listed on the Lima Bourse.

Early in 1918 the Government of Peru authorized Lp. 2,000,000 7 per cent bonds, redeemable in 31 years by semiannual drawings (May and November). The bonds will be exchanged for certain outstanding obligations or will be used for public works.

MUNICIPAL LOANS.

The only Peruvian city that has any external debt is Lima, which sold in London an issue of £600,000 5 per cent Provincial Council First Mortgage Bonds. These bonds receive interest January and July, this interest being payable in New York, London, and elsewhere. The bonds sell at approximately 72, yielding slightly more

than 7 per cent. The high and low prices since January 1, 1912, were $91\frac{1}{4}$ and $64\frac{1}{2}$. The loan is secured by a first mortgage on market, abattoir, warehouses, exhibition grounds, etc. The sinking fund is $\frac{1}{2}$ per cent. The other debt of the city amounts to approximately £30,000.

The city of Lima needs additional funds to carry out improvements to its water and sewerage systems. The revenues of the city are below normal for a place of its size; nevertheless, general conditions are excellent, business is flourishing, and the financial situation is fair. The population, which is not far short of 200,000, will probably show a still further increase following the close of the European war. The annual revenue of the city, including £7,000 Government subsidy, is £120,000.

Arequipa, second city of the Republic (population approximately 40,000), is seeking in the United States a loan of £100,000 at 8 per cent for public improvements. The place is of fair importance as a center for the exportation of hides and wool. It is the most important station and the general headquarters of the Southern Railway of Peru. The city has excellent lighting and traction facilities (see "Public utilities" section of this chapter). At the present writing the city has no bonds outstanding.

Callao has outstanding an issue of 8 per cent sinking-fund bonds, some of which are held abroad. The Anglo-South American Bank is the fiscal agent for the issue. Callao, the chief port, is largely dependent on Lima. Better sanitary arrangements will add greatly to the attractiveness of this port. Plans to improve sanitary conditions are being promulgated at this writing; this may necessitate arrangements for a municipal loan.

None of the other Peruvian cities and towns have any obligations except small local loans and bank debts. Of these cities, Trujillo will probably show the greatest progress, owing to its importance as the center of the sugar industry of the Republic.

BANKS.

There follows a list of banks operating in Peru, the date of their establishment, their capital and reserves, and the value of their shares:

Banks.	Year established.	Capital and reserves Nov. 30, 1916.	Par value of shares.	Value Mar. 15, 1917.
Bank of Peru and London (Banco del Peru y Londres).....	1863-1877	^a Lp809,403	^a Lp10	^a Lp11 bid
Caja de Ahorros (Savings Bank).....	1868	71,492		
Italian Bank (Banco Italiano).....	1889	354,960	10	12½ bid
International Bank of Peru (Banco Internacional del Peru).....	1897	125,503	5	3½ bid
Popular Bank of Peru (Banco Popular del Peru).....	1890	214,690	2	2½ bid
Bank of Deposits and Consignments (Caja de Depósitos y Consignaciones).....	1905	119,313		
German Transatlantic Bank (Banco Aleman Transatlántico).....	1905	200,000	(b)	(b)
American Mercantile Bank of Peru (Banco Mercantil Americano del Peru).....	1916	102,426	(c)	(c)

^a The Peruvian libra (pound), which is equivalent in value to the pound sterling (£4.8665) is abbreviated Lp.

^b Held privately.

^c Held in the United States.

Dividend payments of certain of these banks are shown in the table on page 343.

The laws governing banking in Peru are virtually those governing general corporation business, and the organization of a bank is not a difficult matter. As conditions exist to-day, it may be said that banking facilities in the country are ample. The establishment in 1916 of the American Mercantile Bank of Peru has filled a long-felt want and has resulted in closer relations between Peru and the United States. The bank is controlled by important American banking interests and has entered on its career with excellent prospects. The head office of the controlling company, the Mercantile Bank of the Americas, is at 38 Pine Street, New York. The directorate in Lima consists of Señores Julio R. Loredó, Felipe Pardo, and Ricardo Salcedo; the manager is Fernando J. Oelmichen. The authorized capital of the bank is Lp1,000,000, of which Lp100,000 is paid in.

The Bank of Peru and London is controlled by Peruvian, French, and British capitalists. It is the oldest and largest bank. In addition to the main office at Lima (a palatial structure), 15 branches have been established throughout the Republic, these being located at Iquitos, Piura, Chiclayo, Pacasmayo, Trujillo, Huare, Huacho, Callao, Cerro de Pasco, Mollendo, Arequipa, Cuzco, and elsewhere. The capitalization of the bank, as stated, is Lp500,000. Dr. Manuel V. Villareal is president and Mr. J. Payen director general.

The Caja de Ahorros is a savings bank and does not handle an ordinary commercial business. The bank pays 4 per cent on six months' deposits and 6 per cent on yearly accounts. This is purely a local institution, with headquarters at Lima.

The Italian Bank, with a capital of Lp200,000, has its principal office at Lima. Branches have been established at Callao, Arequipa, Chíncha Alta, and Mollendo. The bank is of Italian origin, its Italian correspondent being the Banco Commerciale Italiano. Profits for the year 1915 were \$81,460 United States currency.

The International Bank of Peru, one of the smaller institutions (capital, Lp100,000), showed a profit of \$18,698 in 1915. Profits were larger during 1916, as was reflected by a dividend increase from 4 to 4½ per cent.

The Popular Bank, in its statement, also indicated increased prosperity, paying 7 per cent in 1916 on Lp150,000 stock, instead of 5 per cent, the rate paid during 1915. The authorized capital of the bank is Lp200,000. The Popular Insurance Co. is largely controlled by this banking institution and pays annual dividends of 8 per cent on Lp200,000 stock.

The German Transatlantic Bank is indirectly a branch of the German institution with a similar name. The parent organization has a capitalization and reserves of 39,500,000 marks. The local institution is established at Lima, Arequipa, and Trujillo. The bank has a wonderful credit-rating system and prior to the war handled a very large international business.

The Bank of Deposits and Consignments is the official governmental depository. Its profits during 1915 were \$81,251.

As a final word it may be said that the general banking situation in Peru at the present time is excellent, reflecting the steady improvement in business and financial conditions throughout the Republic.

INSURANCE COMPANIES.

Peru has at present eight insurance companies of recognized standing. The capitalization and dividend record of six of these companies are shown in the table on p. 343. There are no foreign companies operating in Peru at the present time, despite the comparatively large profits earned by the various companies now in the field. The Rimac and the International companies have been the largest in the field until recently, and are likewise the oldest, having been founded in 1896 and 1895, respectively. The Rimac company has a capitalization of Lp250,000 and the International Lp200,000. Dividends paid by the Rimac company have varied from 30 to 35 per cent per annum (1913 to 1916). In August, 1916, the Urbana Insurance Co. and the Insurance Co. of Peru were consolidated as the Compañías Unidas de Seguros with a capitalization of Lp500,000, which is the largest capitalization of any of the companies in the field. The Italia Insurance Co., closely affiliated with the Italian Bank, was established in 1896; the Popular and the National companies were established in 1904, the former having a capitalization of Lp200,000 and the latter of Lp250,000. El Porvenir, the shares of which are not listed, is capitalized at Lp100,000. Pedro D. Gallagher is president and Dr. Javier Prado y Ugarteche is vice president. The head offices of all these companies are at Lima.

None of the insurance companies domiciled in the United States have entered the Peruvian field. The dividend records of the various companies in the field indicate its attractiveness.

RAILWAY DEVELOPMENT.

Peru has unusually liberal laws to encourage railway building, and is very anxious to grant privileges to interests financially able and willing to carry out construction enterprises leading to the development of the country. Concessions will be granted either perpetually or for a long term of years, usually with renewal privileges, and it is usually stipulated that the lines shall be free from competition during a certain period. Material may be imported free, taxation is exempted, and employees are free at all times from military duties.

The Government has assigned certain taxes and revenues for use in subsidizing railway construction. Despite this fact, however, such construction has been slow in the extreme. Scarcity of population, roughness of country, high cost of fuel and materials, and other causes have combined to check the development in this field. Such lines as have been completed thus far are of a variety of gauges, each individual line serving a district of its own and usually terminating before reaching the slope of the mountains. Only two lines strike from the coast into the mountains. These lines—the Central Railway of Peru and the Southern Railway of Peru—will be discussed hereafter. Aside from these two lines, there is only one railway of importance in the mountains, namely, the Cerro de Pasco Railway, which connects with the Central Railway of Peru at Oroya and runs to the Cerro de Pasco mines and beyond. There are no railways at present leading down the eastern slope of the mountains, where great varie-

ties of tropical wealth exist. Many lines have been projected, usually to connect with the headwaters of the Amazon River. Thus far, with the exception of a few surveys, nothing has been done, although at the present time one section of eastern Peru is within reasonable distance of the Southern Railway at Cuzco. The projected line from Cerro de Pasco to the Rio Ucayali (see p. 333) will probably be the first railroad built into the eastern territory.

One glance at the map of Peru will reveal the lack of railway development throughout the country. The present railway mileage (less than 2,000 miles in operation) is mostly under the control of the Peruvian Corporation, financed with British capital and incorporated in 1890 in the interests of the holders of the external debt of Peru. The history of this corporation is a somewhat familiar story, and will not be repeated here. The concession granted by the Government following the carrying out of certain undertakings on the part of the corporation contained, among others, the following clauses:

All State railways operated at time of concession shall be leased to the corporation until 1956 without rental, and thereafter for 17 years upon payment by the corporation to the Government of one-half of the net surplus after bond service.

An annuity of £80,000 (\$389,325) to be paid for 30 years after July 1, 1907 (as amended), being specially chargeable to the national sugar tax created in 1904.

CAPITAL AND INVESTMENTS OF PERUVIAN CORPORATION.

The total capitalization of the Peruvian Corporation as of June 30, 1916, consisted of (1) £4,975,450 (\$24,213,025) debentures bearing interest at 4 per cent fixed and 2 per cent dependent on income; (2) £7,500,000 (\$36,498,750) 4 per cent cumulative preference shares, on which upward of 82 per cent in back dividends remained due as of June 30, 1916; (3) £9,000,000 (\$43,798,500) ordinary shares, par £1 (\$4.87). The first-mortgage debentures are quoted at 83½ per cent, and the preference and ordinary shares at approximately 25 per cent and 5 per cent, respectively.

The following table shows, in pounds sterling and equivalent American currency, the result of the working of the railways and steamers (on Lake Titicaca and the River Desaguadero) for fiscal years ended June 30:

Fiscal years.	Net receipts.		Fiscal years.	Net receipts.	
	Pounds sterling.	U. S. currency.		Pounds sterling.	U. S. currency.
1890-1.....	£91, 772	\$446, 600	1911-12.....	£435, 552	\$2, 119, 600
1895-6.....	103, 482	503, 600	1912-13.....	438, 502	2, 133, 975
1900-1901.....	200, 759	977, 000	1913-14.....	449, 259	2, 186, 325
1905-6.....	244, 914	1, 191, 875	1914-15.....	241, 525	1, 175, 375
1910-11.....	468, 693	2, 280, 900	1915-16.....	370, 361	1, 802, 350

It is stated that earnings for 1916-17 were far in excess of the 1915-16 total, indicating larger dividend returns on the preference shares.

The balance sheet of the Peruvian Corporation as of June 30, 1916, stated that the cost of the various properties and concessions acquired under or in connection with the contract for conversion of the Peruvian debt amounted to (net) £12,772,305 (\$62,156,425); value of shares and stocks in the Peruvian Central Railway (£1,333,327, or \$6,488,625), the Southern Railway of Peru (£2,224,800, or \$10,827,000), etc., amounted to £4,251,513 (\$20,690,000); expenditures in respect of reconstruction and extension of the railways totaled £4,859,692 (\$23,649,700); cost of Guauqui-La Paz Railway, £396,320 (\$1,928,700). The total investment, including certain additional holdings, amounted to £23,204,844 (\$112,926,375).

There follows a brief description of the various railways under control of the Peruvian Corporation:

PERUVIAN CENTRAL (OROYA) RAILWAY.

The Peruvian Central Railway, which bears the distinction of being the highest and most remarkable line in the world, was partially constructed some 40 years ago by an American, Henry Meiggs. The main line extends from Callao and Lima via Oroya to Huancayo. The Callao-Oroya section in the short distance of 106 miles reaches the remarkable altitude of 15,665 feet at Galera Tunnel, cut through the Continental Divide. A branch (10 miles) extends from Ticlio to the mines at Morococha, this branch reaching an altitude of 15,865 feet, the highest point reached by any railway in the world.

The maximum gradient on the main line is approximately 4 per cent. No rack or cog rail is used, the sierras being surmounted by means of a series of 16 switchbacks. The rails are of an average weight of 70 pounds to the yard, the gauge being standard (4 feet 8½ inches). There are 57 tunnels¹ on this section, one of these tunnels exceeding three-quarters of a mile in length. All locomotives use oil as fuel; most of these locomotives and a large proportion of the passenger and freight cars are of American construction. The approximate mileage, including the Ancon branch, not heretofore mentioned, is 249 miles. Gross receipts for 1915-16 amounted to £502,436 (\$2,445,100), as compared with £361,837 (\$1,760,875) in 1914-15. Net receipts amounted to £222,014 (\$1,080,425). The number of passengers carried in 1915-16 was 2,342,093, against 2,300,606 in 1914-15. The amount of freight handled, including 311,038 tons of minerals, totaled 552,743 tons, an increase of 177,631 tons. Mr. J. H. Feehan, Lima, Peru, is the general manager.

The company handles a large local passenger business between Callao, Lima, and Chosica and between Lima and Ancon. Half-hourly train service is maintained between Lima and Callao, and despite competition from interurban tramway lines the trains are heavily patronized. Through service to Oroya is maintained tri-weekly, connections being afforded with the Cerro de Pasco Railway running to the Cerro de Pasco mines, 83 miles from Oroya. Tri-weekly service is likewise maintained between Oroya and Huancayo. Terminal facilities at Callao and Lima are excellent.

¹ There are on the entire line 65 tunnels and 67 bridges, many of which are marvels of construction. As an engineering feat this railway has never been duplicated.

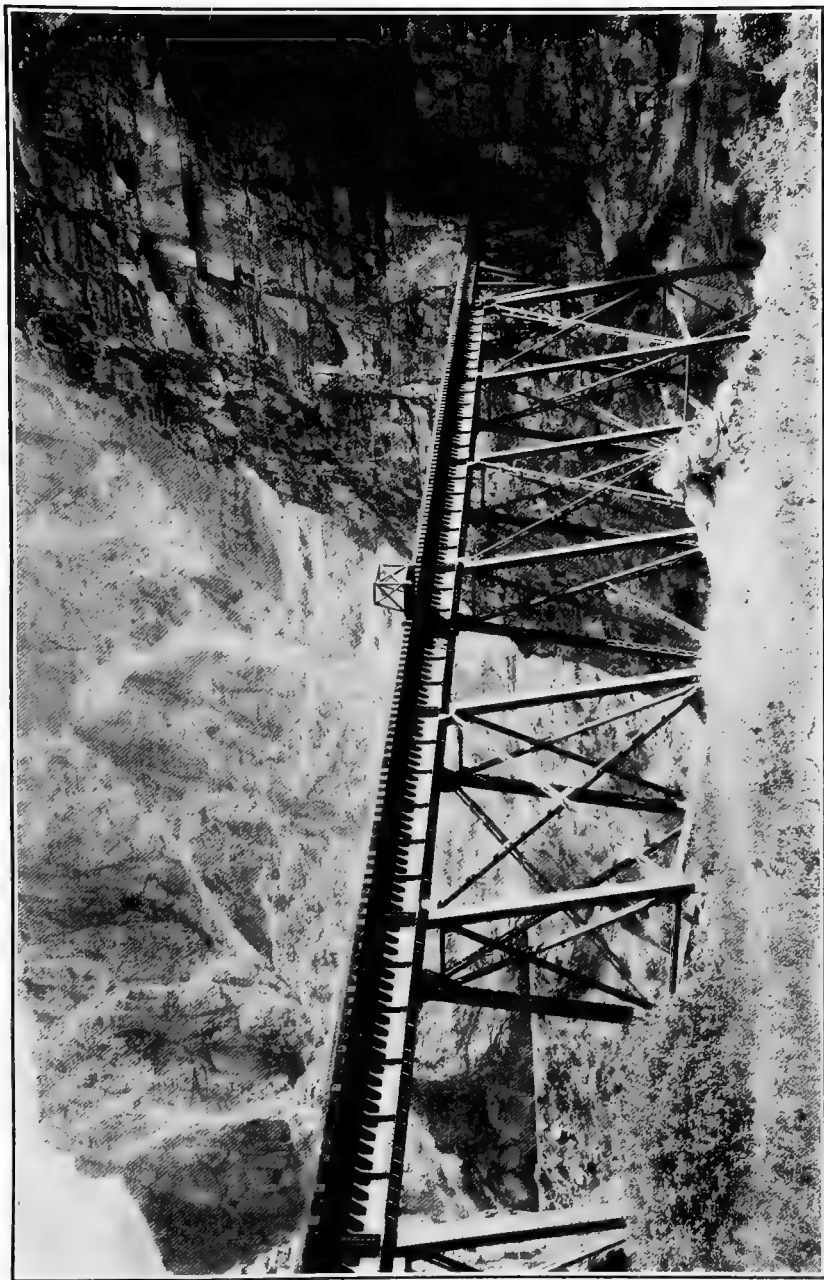


FIG. 18.—BRIDGE CONNECTING TWO TUNNELS ON PERUVIAN CENTRAL RAILWAY.



FIG. 19.—VIEW OF CERRO DE PASCO RAILWAY, PERU.

SOUTHERN RAILWAY OF PERU.

The Southern Railway of Peru was also a product of the genius of Henry Meiggs, having been planned and partly constructed by him and, as in the case of the Peruvian Central Railway, completed by Henry Thorndyke, an American. The railway has its Pacific terminal at the port of Mollendo, which, unfortunately, is hardly more than an open roadstead. After a run of about 15 miles along the seashore and flat coastal country the railway begins its climb. At a distance of 107 miles from Mollendo, Arequipa is reached, the altitude at this point being 7,550 feet. Crucero Alto, the highest point of the line (altitude 14,688 feet), is 117 miles beyond Arequipa; the line then descends gradually, the altitude at Puno, the port for Lake Titicaca, being 12,535 feet. The total distance from Mollendo to Puno is 326 miles. From Juliaca, 30 miles from Puno, the Cuzco division strikes off northward for 210 miles. The highest altitude on this division is 14,153 feet. It is believed that at no distant date this division will be linked with the Peruvian Central Railway. From Puno the company runs steamers across the lake, connecting with through trains to La Paz, Bolivia.

The gauge of the Southern Railway is 4 feet 8½ inches; the rails average 60 to 80 pounds to the yard. The passenger fare from Mollendo to Arequipa is \$3 gold and to Puno \$10, slightly less than 3 cents a mile. From Juliaca to Cuzco the fare is \$8.10, equal to about 4 cents a mile. Four or five trains a week are operated between Mollendo and Arequipa, semiweekly trains continuing from the latter point to Puno and Cuzco.

For the year ended June 30, 1916, the gross earnings of the Southern Railway amounted to £256,194 (\$1,246,775), compared with £231,634 (\$1,127,250) in 1914-15. Gross earnings during 1912-13 reached a total of £356,674 (\$1,735,750). Net earnings during 1915-16 were £80,788 (\$393,150); in 1912-13, £132,967 (\$647,075). The total number of passengers carried in 1915-16 was 208,418, compared with 587,818 in 1912-13, and 622,617 in 1911-12. This very large decrease is due to local tramway competition adjacent to Arequipa and to the completion of the Arica-La Paz Railway. Freight tonnage during 1915-16 amounted to 125,734 tons, this class of traffic being likewise affected by competition arising from the completion of the Arica-La Paz Railway. Most of the cars in use are of American manufacture. A total of 526 miles of main track are operated, this being the longest railway line in the Republic. Approximately 635 miles of extensions are planned.

The Lake Titicaca steamship line earned gross during 1915-16 £22,656 (\$110,250), contrasted with £63,967 (\$311,300) in 1912-13, this very heavy decrease having been caused principally by the competition on through business resulting from the completion of the Arica-La Paz Railway. There were 8,400 passengers carried during 1915-16. The Guaqui-La Paz Railway in Bolivia, with which the Lake Titicaca steamers connect, is owned by the Peruvian Corporation. Its gross earnings for 1915-16 were £42,470 (\$206,675), and net earnings £10,152 (\$49,400). In 1912-13 the gross earnings totaled £87,921 (\$427,875).

TRUJILLO RAILWAY.

The Trujillo Railway, approximately 75 miles in length, extends from the port of Salaverry via Trujillo and Chocope to Ascope. The line is of 3-foot gauge, 30 to 48 pound rail, constructed without meeting difficult grades, and equipped largely with American rolling stock. The terminal at Salaverry adjoins a mole 1,200 feet in length. A very large business is handled at the port despite the fact that it is little more than a rough, open roadstead. Sugar is the principal commodity, the railway carrying 104,883 tons in 1915-16 and a still larger amount in 1916-17. The total freight tonnage of the railway for 1915-16 was 179,978 tons; 532,546 passengers were transported. Gross receipts for 1915-16 amounted to £66,118 (\$321,750), compared with £51,505 (\$250,650) in 1914-15. Net receipts for 1915-16 were £27,199 (\$132,375). There are four passenger trains daily in each direction between Salaverry and Trujillo and a regular tri-weekly service between Trujillo and the sugar country in the interior.

It is anticipated that the earnings of this line will suffer somewhat following the construction of a railway from the sugar lands to the port of Malabrigo. A mole is to be constructed at the latter port, which is much better situated than Salaverry. The agricultural areas adjacent to the Trujillo Railway are very fertile, and the country is capable of great development. For several years an extension of the line has been projected to climb high into the mountains, reaching the plateau at an elevation of about 12,900 feet. The line would pass through extensive coal fields located at Huayday and would reach the silver and copper mines at Querivilca. The maximum grade for this line would be $6\frac{1}{2}$ per cent, and the cost fairly high. While this line is certain upon completion to secure a large amount of mineral traffic, its construction will probably be delayed, at least for the present.

PAITA-PIURA RAILWAY.

The Paita-to-Piura Railway is a 60-mile line, equipped with American rolling stock, extending from the port of Paita, in northern Peru, to Piura (population 10,000), located some distance inland. The construction cost of the line, completed in 1884, was approximately \$1,800,000. Forty-four-pound rails are used, and the maximum gradient is about 2.55 per cent. Gross receipts for 1915-16 were £33,278 (\$161,950), and net receipts £14,462 (\$70,375); 51,940 tons of freight were handled and 116,480 passengers were transported. Five passenger trains are maintained weekly in each direction. The freight consists mostly of cotton, the territory, largely undeveloped, being highly suitable for the growth of that product. Calacoas (population 20,000), a few miles inland from Piura, is an important center for the manufacture of panama hats, nearly 300,000 being made annually. Large areas of oil and sulphur lands are located near by. An extension to follow the Rio Piura to Catacaos is projected. The distance slightly exceeds 6 miles. There is at present a 3-foot-gauge line, the Piura-to-Catacaos Railway, connecting the two cities. An extension of this line to the town of Morropon has been surveyed. The existing line is laid with 24-pound rails and is suitable only for light traffic. It cost approximately \$28,000 to build ($6\frac{1}{2}$ miles), and is owned locally.

A railway 450 miles in length has several times been surveyed, to extend from Paita to Calantura or some point from which the Maranhao River is navigable. The line would cross the cordillera at an altitude of about 7,000 feet. From the Maranhao River navigation for steamers is possible to the Amazon River and ocean ports. The construction of the line would greatly shorten the distance between the West Coast of South America and Europe and would open some extremely rich country for development. In the event of the construction of the line the Peruvian Corporation will doubtless operate it.

PACASMAYO-GUADALUPE RAILWAY.

The Pacasmayo & Guadalupe Railway is $63\frac{1}{2}$ miles in length, connecting the port of Pacasmayo with the towns of Guadalupe and Chilete. The port is provided with a pier 2,500 feet long, the harbor being scarcely better than an open roadstead. There is a daily service of passenger trains between Pacasmayo and Guadalupe, beyond which latter point only fortnightly service is maintained. The railway originally extended to La Vina, 11 miles beyond Chilete, but the track was washed away some years ago. In order to make the section beyond Guadalupe pay the line should be carried on to Magdalena, 25 miles beyond Chilete, and thence to Cajamarca, on the summit of the cordillera. Such an extension is contemplated, but in order to avoid floods the line must be located over a route subject to very severe grades.

The gross earnings of the Pacasmayo & Guadalupe Railway for 1915-16 were £22,564 (\$109,800), and the net earnings £7,086 (\$34,475). Passengers numbered 134,722; the freight handled amounted to 30,476 tons and consisted chiefly of rice and fruit. The gauge of the line is 4 feet $8\frac{1}{2}$ inches, and the equipment is mostly of American make.

CHIMBOTE RAILWAY.

Chimbote, universally spoken of as the best harbor in Peru, is the terminus for the meter-gauge Chimbote Railway, which extends to Tablones, 36 miles inland. The line was opened for traffic in 1872 and was later partially washed away. Following its repair it was operated by the Peruvian Corporation. Earnings are very small, usually less than expenses. In 1915-16 gross receipts totaled £4,458 (\$21,700) and net receipts were £300 (\$1,450), as compared with a loss of £879 (\$4,275) in 1914-15. The continuation of this line inland to Recuay, 100 miles beyond, has long been discussed, the plan being to develop extensive areas producing coal of a quality suitable for briquetting. Conflicting reports concerning the quality of this coal have been published, but it has been claimed that methods exist whereby the product may be made marketable. The coal field was once held under option by the Pennsylvania Railroad. At the present time the small amount of freight handled is derived mainly from sugar plantations belonging to the Peruvian Sugar Co. and from products of a large estate known as Tambo Real. Only one train a week is operated in each direction, the whole future of the property depending on such traffic as may in time be developed from interior points. An extension under different ownership from

Tablones inland toward the Recuay coal fields was partly completed for a distance of about 30 miles (to La Limena) and opened for a small amount of provisional traffic several years ago. It is estimated that an expenditure of \$10,000,000 gold would enable any possible purchaser to acquire the present railway mileage and port concession, build the necessary extension, and open the coal fields for development. The altitude at Recuay is about 11,000 feet, and certain fairly heavy grades would have to be surmounted. Beyond this point surveys have been made indicating that it would be possible to build a link to connect with the Cerro de Pasco Railway.

PISCO-ICA RAILWAY.

The Pisco-to-Ica Railway is a 46-mile line, 4 feet 8½ inches gauge, with rail of 60 pounds average weight. The road extends from the port of Pisco in a southeasterly direction through the plain between the Pisco and Ica Rivers, entering the Ica Valley at Guadalupe and continuing to the city of Ica (population 11,000), center of the finest grape country in the Republic. The port of Pisco is equipped with an excellent pier and ranks highest in importance of any port between Callao and Mollendo. The Pisco-to-Ica Railway is the property of the Peruvian Government, is leased to the Peruvian Corporation, and sublet by the latter to private parties at an annual rental of 30 per cent of gross receipts. These receipts for 1915-16 totaled £17,614 (\$85,725), of which amount £5,285 (\$25,700) accrued to the Peruvian Corporation as rental.

ILO-MOQUEGUA RAILWAY.

The Ilo-to-Moquegua Railway, about 62 miles in length, links Ilo, the most southerly port in the Republic, with Moquegua, capital of the Province bearing that name. Wine, grapes, olives, and similar products are exported from the district adjacent to the line. The railway was constructed between 1870 and 1873, but following the Chilean War (1879-1883) was abandoned and was not reopened until 1907. Two or three years ago arrangements were virtually completed whereby the property would be leased by the Peruvian Corporation for a term of 30 years, but the railway's operations have not as yet been included in the corporation's income account. The company has exclusive railway privileges over an area of 15 miles on either side of its line, and is to construct at a cost of £10,000 (\$48,650) a water-supply system for the town of Ilo.

RAILWAYS NOT CONTROLLED BY PERUVIAN CORPORATION.

Probably the most important of the various lines not under the control of the Peruvian Corporation is the Cerro de Pasco Railway, owned by the mining corporation of similar name. This railway runs on the Andean Plateau from Oroya, the junction with the Peruvian Central, to Junin, La Fundacion, Cerro de Pasco, and Goyllarisquisga. The total mileage is 135; gauge, 4 feet 8½ inches; weight of rail 70 pounds to the yard. The equipment consists of 14 locomotives, 270 freight cars, and a number of passenger cars of American manufacture. The main line has an average grade of 1.5 per cent, with a maximum of 3.7 per cent, and cost upward of \$2,000,000.

The revenue from operation for the period January 1 to September 30, 1916, amounted to \$280,348.

The extension of this line toward the River Ucayali, making connection at Puerta Victoria or at some other port on this navigable affluent of the Amazon, is projected. On various occasions concessions have been granted for the construction of this road, but so far practically nothing has been done other than the making of surveys for possible routes. Its construction will probably be deferred for the present. Various plans have been proposed and various routes have been suggested to furnish the Cerro de Pasco mines an outlet to some port other than Callao. Thus far little actual progress has been made.

The North Western Railway of Peru, gauge 3 feet, extends from Ancon, where it connects with the Central Railway of Peru, northward to Huacho, thence eastward to Sayan; total length, about 130 miles. The railway was to have been extended from Ancon to Lima, but this plan met with opposition on the part of the Government, and it was also found that there was insufficient traffic to make the construction of the extension worth while. The North Western Railway of Peru is an English corporation registered October 31, 1908. Thus far its operation has resulted in a heavy loss, and interest has not been earned on the £1,014,400 (\$4,936,575) 5 per cent debentures. Extensions have been projected to the Oyon coal fields and to the port of Suve. Gross earnings of the line for the year 1912-13 were £29,307 (\$142,625); they have since increased somewhat. Triweekly passenger train service is maintained between Ancon (connecting with train from Lima) and Huacho, while regular train service is maintained between the latter point and Sayan. The office of the management is at Lima.

MISCELLANEOUS RAILWAY LINES.

None of the railway lines in the Republic not heretofore described have assumed any great importance. There is a 7-mile line known as the Tumbes & Puerto Pizarro Railway connecting Tumbes, the most northerly town of any importance in the Republic, with the port of Pizarro. This is a Government-owned line of 0.75-meter (2.46-foot) gauge and was opened for traffic in 1909. Only a small amount of business is handled at this port, which is not touched at by any of the regular steamship lines maintaining service along the coast. Farther south at the minor port of Bayover a 30-mile meter-gauge (3.28-foot) line known as the Bayover & Reventazon Railway terminates. This railway extends to some sulphur mines owned by the Sechura Mining & Industrial Syndicate and is not operated as a common carrier.

Extending inland from the port of Eten, located a short distance to the north of Pacasmayo, there is a standard-gauge railway 41 miles in length. This railway extends to Chiclayo and Ferrinafe, with a branch from Chiclayo to Patapo. The capital stock is owned locally. Equipment consists of 8 locomotives, 13 passenger cars, and 55 freight cars, and the weight of rail is 54 pounds to the yard. Approximately 125 miles of extensions are projected; these, however, are of 3-foot gauge. Some construction difficulties will have to be overcome and grades on the extensions will be fairly heavy. In

one part of the existing Chiclayo-to-Patapo line the grade reaches 6 per cent. This company publishes no statement of earnings and expenses. Recently it acquired the assets of the Pomalca Railway, formerly owned by the Sociedad Agrícola Pomalca, connecting a large agricultural estate with Eten. The former management held and transferred certain valuable concessions for the construction of additional mileage.

A number of short spurs or lines extending to plantations and mines have been built in various sections of the Republic. Some of these are classed as common carriers; none of them are of much importance. A most comprehensive construction program has been laid out for the future, which, if carried into effect, would cause the rapid development of the country's vast agricultural and mineral resources and would open to the outside world the almost limitless areas of virgin territory lying on the eastern slope of the Andes.

PUBLIC UTILITIES.

In the public-utility field Peru has shown excellent progress. Most of the important cities and towns have water and electric light and power systems, while telephones connect many sections of the Republic. Tramway systems traverse the streets of Lima, Callao, and towns adjacent thereto, and also are established at Arequipa. Lima is also provided with a gas service, which, however, has not been well patronized during recent years.

IMPORTANT COMPANIES IN LIMA-CALLAO DISTRICT.

The most important public-utility company in Peru is the Empresas Eléctricas Asociadas of Lima (Lima Light, Power & Tramways Co.), controlling the electricity and gas franchises in and adjacent to Lima, as well as more than 86 miles of tramway. The £1,091,460 first-mortgage 5½ per cent bonds are listed on the London Stock Exchange and on the Lima Bourse. They form part of an original issue of £1,200,000 bonds, retireable by sinking fund. This sinking fund was suspended for two years commencing 1914 and has only recently been resumed. Earnings from electric light and power service for the year 1915 amounted to \$751,023 as compared with \$741,790 in 1914; net revenues totaled \$505,972 (\$523,562 in 1914). Tramway earnings amounted to \$997,640 in 1915 (\$997,712 in 1914); net revenues totaled \$383,487 (\$412,247 in 1914). Freight railways produced a revenue of \$131,371 in 1915 and were run at an expense of \$146,242. On December 31, 1915, 127 tramway cars were in service, many of familiar American makes. The surplus earnings of the company after fixed charges, depreciation, bad debts written off, etc., amounted in 1915 to \$145,951. Total gross earnings from all sources were \$1,880,085. The total amount of stock outstanding as of March 15, 1917, was Lp1,500,003, on which dividends have been paid in recent years as follows: 1906, 3 per cent; 1907, 6 per cent; 1908, 6 per cent; 1909 and 1910, 4½ per cent each; 1911, 5½ per cent; 1912, 5½ per cent; 1913, 4½ per cent; 1914, 1 per cent for first quarter; 1915, none; 1916, 2 per cent for last portion of year.

The Peruvian Telephone Co. (partly local and partly British capital) furnishes the telephone service for Lima, Callao, and near-by places.

PUBLIC-UTILITY ENTERPRISES IN AREQUIPA.

Arequipa, the metropolis of southern Peru, is located at a distance of about 665 miles from Lima and is the center of a productive and somewhat important district. The city has a population slightly in excess of 40,000, and its altitude is approximately 7,550 feet.

The water supply of the city, drawn from the near-by mountains, is furnished by the municipality and represents one of its principal forms of income. Several mineral springs, two of which are widely known throughout South America, furnish the drinking water used by the upper classes generally.

Electricity for light and power is furnished by the Sociedad Eléctrica de Arequipa (Ltd.), a local company that has been very successful. The company's power station is located at Charchani, on the River Chile, about 8 miles from the city, near the base of Mount Charchani (altitude of mountain approximately 19,500 feet). Upward of 27 miles of circuit are in use. The capitalization of the company amounts to \$375,000 United States currency, and reserves total \$97,140. Materials and current assets on hand as of December 31, 1916, indicated an excellent financial condition. Gross earnings for the calendar year 1916 totaled \$114,201, and expenses, including extraordinary repairs, amounted to \$34,270. The net surplus was \$79,931, from which a dividend of \$45,000 (12 per cent) was paid to the shareholders. Dividends during recent years have averaged from 10 to 12 per cent per annum. Shares, although not quoted, are worth more than par, and are held by 55 stockholders. Señor M. Ugarteche, Arequipa, is the director-general.

The traction service of the city is controlled by the Tranvía Eléctrico de Arequipa (Ltd.). The total authorized length of the system, including a series of belt lines and an extension to the town of Tingo, is 10 miles. Thus far the operations of the line have not proved as successful as was anticipated, and the road is operated at the present writing by W. R. Grace & Co. as agents for the Bondholders' Syndicate, consisting of W. R. Grace & Co., the Italian Bank, the Bank of Peru and London, etc. There are outstanding at the present time £67,500 of an authorized issue of £75,000 8 per cent bonds, these being listed on the Lima Stock Exchange. The company does not make public any statement of operating results. Rates of fare in the city are very low, the belt line charging 2½ cents gold within the city limits. The rates to Tingo are 7½ cents first class and 5 cents second class. The manager of the company is an American, and American equipment is used.

The city is provided with an excellent telephone system, which serves the surrounding country and connects with through trunk lines to Mollendo and other sections of the Republic. The Mollendo extension is owned by the operating company, which is known as the Empresa de Teléfonos Arequipa y Mollendo. The holder of the concession is Gustavo Llosa, of Arequipa, who, it is stated, owns the entire stock of the company. Subscribers number about 500.

There is no gas company in the city, and it is hardly likely that one would pay.

MINING ENTERPRISES.

Peru, long the Eldorado of the Spanish Conquistadores, exported during the days of Spanish occupancy enormous quantities of gold,

silver, and copper. To-day, so far as gold is concerned, the country occupies an insignificant position among the nations of the world; nor does it occupy a prominent position as a silver producer. These valuable minerals are to-day mined mainly as by-products. Copper is king in Peru, and most of the copper is produced by three mines only, namely, the Cerro de Pasco Copper Co., the Backus & Johnston mine, and the Morococha mine. The Cerro de Pasco Co.'s mine is described in the Appendix (p. 521). The property produced during the period from its discovery to the year 1900 no less than 40,000,000 tons of silver and copper ore. The Morococha mine is under Cerro de Pasco control.

During 1916 a total of approximately \$1,200,000 of gold was mined in Peru, as compared with about \$490,000 in 1911. About one-half of this gold was produced at Cerro de Pasco, the remainder being widely distributed. The principal gold mines are the New Chuquitambo (capital, Lp50,000; see Appendix); the Santo Domingo, controlled by the Inca Mining Co.; Aporama Goldfields (Ltd.), etc. Gold statistics in this country are very difficult to obtain, it being almost impossible to trace the amounts secured by Indians.

Probably the most important silver mine in the Republic is that owned by the Anglo-French Ticapampa Silver Co., located near the port of Huarney, with which it is connected by a short stretch of light railway. Dividends paid by this company have averaged from 20 to 25 per cent per annum. The capitalization as of recent date was 2,500,000 francs. The entire directorate is French. The Morococha mine produces large amounts of the mineral. Its production during recent years has been as follows: 1911, 230,132 ounces; 1912, 431,226 ounces; 1913, 549,795 ounces; 1914, 608,322 ounces; 1915, 874,000 ounces; 1916 (estimated), 1,500,000 ounces. Now that silver is enjoying such a high price in the world's markets, there is likely to be a boom in the white metal in the Republic of Peru, and the country will probably again occupy a very high place as a producer.

The copper production in Peru for three recent years, according to a statement by American Consul General Handley, has been as follows (long tons, 2,240 pounds): 1913, 27,328 tons; 1914, 25,070 tons; 1915, 31,890 tons, fine copper. Copper exports from Callao totaled \$14,198,799 in 1915. A small amount of copper was also exported from Salaverry. The copper reserve of the Cerro de Pasco properties is estimated at 253,452,000 pounds.

Coal is mined in large quantities at Goyllarisquisga, at or near which place the Cerro de Pasco Mining Co. holds 108 coal-mining claims. Coal reserves at these mines are estimated at 3,052,903 tons. Practically all of this coal is used at the Cerro de Pasco mines and smelters. Coal also exists at Oyon, Checras, Recuay, Hutunhuasi, near Oroya, and at other places. Exploitation of these mines has been much discussed, although little has thus far been done to develop them. It is not certain that all or any great part of this coal is of commercial value.

Borax exists in large quantities near Arequipa, and it is expected that the Borax Consolidated (Ltd.), which owns the deposit, will begin extensive development in the near future. Other minerals in Peru are tungsten, lead, mercury, vanadium, bismuth, salt, molybde-

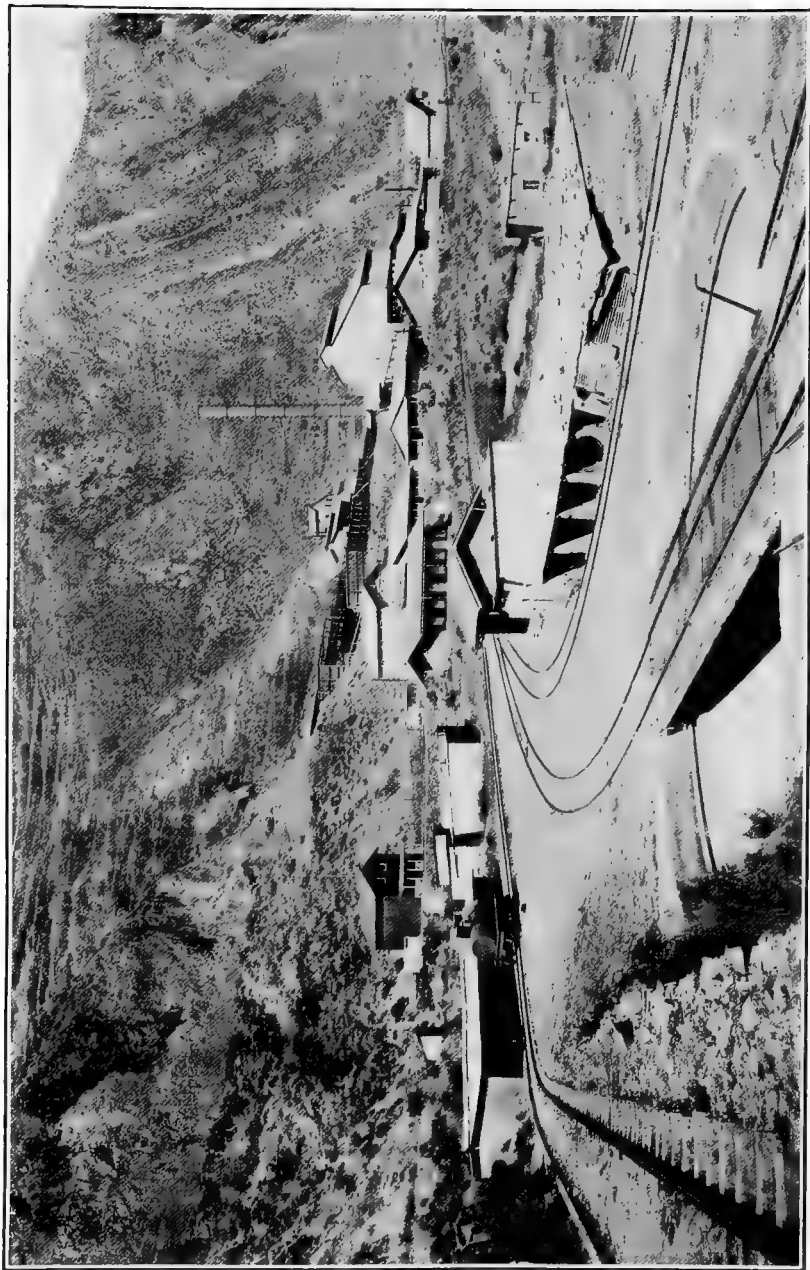


FIG. 20.—BACKUS AND JOHNSTON SMELTER AT CASAPALCA, PERU.



Photograph by P. S. Penfield.

FIG. 21.—PORT OF MOLLEND, PERU.

num, antimony, and zinc. None of these minerals are now mined in any considerable quantities.

Gold is taxed £10 per kilo in dust or bar and £2 per kilo when contained in other minerals. Silver pays 1s. per kilo at a fixed parity of 23½d. per ounce; 2½d. per kilo is payable for each advance of 1d. per ounce in the price of the metal. At the present price of silver the tax received by the Government exceeds 3s. 6d. per kilo. The copper tax is 15s. per ton when the price does not exceed £65 per long ton. For all advances above that price the tax amounts to 10 per cent of the increased price. There is likewise a duty on all imported material and supplies.

The following table gives the estimated value of Peruvian minerals produced in 1915 and 1916:

Minerals.	1915	1916	Minerals.	1915	1916
Gold.....	\$1,114,540	\$1,206,298	Antimony.....	\$43,161	\$134,038
Silver.....	1,526,765	6,483,398	Borates.....	19,855	67,741
Copper.....	11,909,673	23,359,200	Salt.....	87,646	88,804
Lead.....	129,483	151,825	Mineral waters.....	5,957	12,371
Mercury.....	1,946	6,137	Coal.....	1,016,563	772,260
Zinc.....	1,973	1,747	Petroleum.....	8,210,470	7,418,804
Vanadium.....	1,438,683	1,352,497			
Molybdenum.....	344,889	1,059,840	Total.....	28,857,587	42,129,073
Tungsten.....	6,983	14,113			

THE PETROLEUM INDUSTRY.

Extensive petroleum deposits exist in Peru and are being exploited, largely in the Province of Paita and in other parts of the northern coastal lands. The International Petroleum Co., controlled by Standard Oil Co. interests, has taken the lead in the development of this field and has acquired some of the most important oil companies formerly operating independently. In addition to large amounts of this petroleum annually exported, a market exists locally, considerable amounts being annually used by the various railways of Peru, the Peruvian Steamship Co.'s vessels, the sugar mills, and various manufacturing enterprises.

Oil has also been discovered near Puno on Lake Titicaca. Although this field has been widely discussed in the past, very little development has taken place. A ready market would be found for the product in the Republic of Bolivia. Petroleum exports of Peru for 1913 were valued at \$1,616,006; for 1914, \$1,202,697. The total production of petroleum in Peru in 1915 amounted to 285,000 tons, compared with 252,666 tons in 1914.

There follows an interesting discussion of the petroleum resources of Peru by Frederick G. Clapp, S. G.:

DISTRIBUTION OF PERUVIAN FIELDS.

Ralph Arnold has grouped the Peruvian fields into two general districts, as follows:

- (A) That of the Andes, which contains the—
 1. Titicaca field; and
- (B) The Pacific coast district, which includes the following—
 2. Zorritos field.

3. Lobitos field.

4. Negritos field.

In accordance with our own practice, we might more properly speak of the Zorritos, Lobitos, and Negritos fields as "pools," since they all lie in the Department of Piura, but this distinction is unimportant for practical purposes. Arnold quotes C. M. Hunter as giving (in a personal letter) the total area of oil territory in Peru as over 5,000 square miles, of which 100 square miles have oil possibilities and 200 square miles are proved. In 1915 there were 524 wells in the whole country, of which 90 had been sunk the previous year.

Petroleum is also found in the districts of Pirin, Chimbote, Jauja, Huancaavelica, and Ica; in fact, it is said to occur at frequent intervals from Tumbez all the way to Lake Titicaca. In 1915 the following petroleum companies were operating in the country:

Bayovar Oil Development Co. (Ltd.), owning 558 pertenencias (claims) near Paíta, but not having started operations.

Establecimiento Industrial de Petroleo de Zorritos, owning fields of 17 square miles at Zorritos, 27 wells producing. The output in 1913 was 3,500,000 gallons. It has a refinery at Zorritos.

Lagunitas Oil Co. (Ltd.), owning 8 square miles, and situated 11 miles from Talara, under lease for 35 years from the London & Pacific Petroleum Co. The 1915 output exceeded 2,500 tons a month.

Lobitos Oilfields (Ltd.), owning 11,000 acres between Lobitos and La Cruz; also owning stores and three tank steamers. The production has been as follows:

	Tons.
1911-----	52, 172
1912-----	78, 272
1913-----	74, 314

London & Pacific Petroleum Co., owning extensive leases in the Province of Paíta, partly subleased to the Lagunitas Oil Co. It also owns a fleet of tank steamers and has a refinery at Talara.

Titicaca Petroleum Co., operating in the Titicaca field.

West Coast Fuel Co. (Ltd.), owning storage tanks, pipe lines, etc., at Paíta and Callao.

A. CENTRAL (ANDEAN) DISTRICT.

Oil is found at several points in the Andes, as in the Huallanca region, in Cerro de Pasco, and in the Provinces of Jauja and Parinacochas. The principal known deposits are near Lake Titicaca.

1. *Titicaca field*.—This field is situated in the district of Puno, 300 miles (482 kilometers) from the Coast, 8 miles (12 kilometers) distant from Lake Titicaca, high in the Andes, and near the Bolivian frontier, extending from Cuzco to the boundary of Bolivia. The deposits are found in the Provinces of Canas, Lampa, Azangaro, and Huancane. Exploration was most extensive in the region of Pirin, in the district of Pusi, Province of Huancane, about 5 kilometers northwest of the town of Pusi. The work has been done by the Titicaca Petroleum Co., a United States corporation, which discovered oil in 1906, and which in 1912 had sunk 10 wells reported producing an average of 50 barrels per day, the oil being paraffin base. The Pirin and Corapata localities are only a short distance from Juliaca Station of the Southern Railway near the Bay of Escallani on Lake Titicaca. At Corapata a company composed of Peruvian and Chilean capitalists has carried on exploration work. The Titicaca field now appears to be abandoned.

B. PACIFIC (COASTAL) DISTRICT.

The coastal belt extends southward through a desert waste of 2,000 miles (3,218 kilometers) from the Ecuadorean frontier to Chile. The developed fields, however, extend only from the town of Tumbez, south of the Gulf of Guayaquil, for 180 miles (289 kilometers), to and beyond Paíta, being bounded on the east by spurs of the Andes Mountains, and on the west believed to include the Islands of Lobos. The field is said to be about 30 miles (48 kilometers) wide, and occupies the Province of Tumbez and the northern part of the Province of Piura, but English experts believe it will prove to be 150 miles (241 kilometers) wide east and west.

The fields are situated between the hills of Illescas, south of the port of Paita, in the Department of Piura, and the town of Tumbes, in the north of the Province of the same name bordering on Ecuador. The eastern boundary is considered to be the chain of foothills of La Brea or Amotape, constituting outliers of the Andes.

The coastal fields have little vegetation. Rain seldom falls, but the temperature is said to be ideal. All water used is condensed sea water. Wells range from 250 to over 3,000 feet (76 to 914 meters) in depth.

The best geographic description of the Pacific district of Peru is given by Deustua, a writer in the Mining Journal, who says that there are two great regions: the eastern, comprising the La Brea chain of mountains and other spurs of the western Cordillera of the Andes; and the western, which is smooth, and lies along the coast, and includes a series of plateaus. The mountain region forms the eastern boundary of the coastal plains and of the oil-bearing formation of the Provinces of Tumbes and Paita. The plateau to the north of Paita has an elevation of from 50 to 150 meters (164 to 492 feet), but farther south it almost declines to sea level.

2. Zorritos field.—The Zorritos field is the oldest and the most northern in Peru. It is situated only about 24 miles (38 kilometers) south of Tumbes, south of the Gulf of Guayaquil. The producing territory extends along the coast for about 4 miles (6 kilometers), most of the wells being drilled at the water's edge and some in the edge of the ocean. The Zorritos field is owned by Faustino G. Piaggio & Co., of Callao, whose property in 1910 covered 2,160,000 square meters, not all situated in this field, however.

The greatest depth known to have been reached in the Zorritos field is 3,020 feet (920.5 meters) in Peroles ravine; but most wells are between 600 and 2,000 feet (182 and 609 meters) deep. The productions run in some cases as high as 500 to 600 barrels per day; one-third of all the wells drilled have been failures.

3. Lobitos field.—Next south is the Lobitos field in the Department of Piura, about 60 miles (96 kilometers) north of Paita. The proved area of this field is about 25 square miles (64 square kilometers). It is owned by the Lobitos Oilfields (Ltd.). This is the district of second largest production in Peru. The cost of wells 3,000 feet (914 meters) deep averages about \$10 per foot, as against \$1.50 or \$2 per foot for wells under 1,500 feet. The deepest well in the field was sunk to a depth of 3,435 feet without success, requiring 18 months to drill. All the wells are over 2,000 feet deep. The shallower ones in this field have been short-lived, but the deeper sand favors greater expectations. In 1915 a new pool was reported opened at Punta Restin, 12 miles north of Lobitos.

4. Negritos or Talara field.—The southernmost and richest of the developed coastal areas is the Negritos field, situated 40 miles (64 kilometers) north of Paita, in the Hacienda La Mina Brea and Parinas. The area of this field is about 650 square miles (1,683 square kilometers). Negritos is the center of drilling operations, and Talara, 16 miles distant, where the refinery and wharves are situated, has an excellent harbor, which is connected with the field by a 6-inch pipe line and 16 miles of narrow-gauge railway. At a point 11 miles east of this field is an asphalt seepage called "La Brea." In the Negritos field the first company to operate was the London & Pacific Petroleum Co., the holdings of which covered 650 square miles. The average depth of the wells is 2,500 or 3,000 feet, and the most important oil deposits are below 1,500 feet.

SURFACE INDICATIONS.

The surface indications in Peru consist of:

1. Asphaltic and petroleum-saturated limestones, clays, etc.
2. Association of bitumens with ore deposits.
3. Bituminous dikes.
4. Oil seepages.
5. Submarine petroleum springs.

STATISTICS OF PRODUCTION.

The following table shows the production of crude petroleum in Peruvian fields, in barrels. The figures are in part from "Treatise on Petroleum," by Sir Boverton Redwood (1913), 3, 109; in part from Thompson's "Petroleum

Mining," 32, and in part compiled by Miss Anna B. Koons of the United States Geological Survey:

Years.	Zorritos.	Lobitos.	Negritos.	Titicaca.	Lagunitos.	Total.
	<i>Barrels.</i>	<i>Barrels.</i>	<i>Barrels.</i>	<i>Barrels.</i>	<i>Barrels.</i>	<i>Barrels.</i>
1896.....	47,536					47,536
1897.....	68,452		2,379			70,831
1898.....	68,571		97,292			165,863
1899.....	89,166		145,938			235,104
1900.....	102,976		217,036			320,012
1901.....	74,647		239,488			314,135
1902.....	59,273		205,810			265,023
1903.....	49,047		269,424			318,471
1904.....	49,547		295,617			345,834
1905.....	37,720	a 75,000	335,160			447,880
1906.....	42,419	162,000	330,510	1,365		536,294
1907.....	65,476	279,000	396,750	15,000		756,226
1908.....	71,429	319,898	543,750			1,011,180
1909.....	70,750	429,195	740,070			1,316,118
1910.....	107,000	400,080	773,025			1,330,105
1911.....	64,286	391,290	882,698			1,368,274
1912.....	78,095	587,048	1,071,000			1,751,143
1913.....	83,343	557,355	1,036,490		346,073	2,133,261
1914.....	88,136	504,743	1,032,210		282,713	1,917,502
1915.....	72,736	664,972	1,355,925		392,618	2,487,251

a Estimated.

GUANO GATHERING.

Guano, once the most important export from Peru, is no longer a source of any considerable revenue to the Republic. The Peruvian Corporation, in accordance with agreements between the Peruvian Government and the bondholders made at the time of the formation of the corporation, was allotted 2,000,000 tons of this guano to be shipped over a period of years. Up to 1915 the Peruvian Corporation, according to official audits, had shipped 1,237,128 tons of this guano. Recent decrees of the Government confined the operations of the corporation to certain islands and restricted areas, against which the corporation and the British, French, and Dutch Governments have officially protested. The Peruvian Corporation, owing to existing conditions, made no shipments during 1916.

In addition to the Peruvian Corporation, an independent guano-gathering concern exists; this is under German control.

AGRICULTURE.

Sugar is the leading agricultural product of Peru and as an article of export is bringing considerable wealth to the nation. Despite abnormal freight charges and lack of ship tonnage, Peruvian sugar is finding its way to Europe and other parts of the world. Chile buys large quantities of it, while considerable amounts are used for home consumption. It is the writer's belief that the sugar industry will be the backbone of the future development of the country. Already large sums of British and German capital have been invested in the sugar plantations, and as soon as the war is over additional sums will follow. Production costs are low. The sugar plantations are located mostly in the irrigated country west of the mountains, although a number of plantations exist on the eastern slope. The sugar acreage exceeds 100,000. Salaverry is the leading sugar port at present, and Trujillo is the center of the industry. Splendid sugar country is found near the port of Chimbote, but better irrigation facilities are needed,

The Peruvian Sugar Co. (Ltd.) has important plantations near that port.

Statistics follow indicating the area of sugar lands under cultivation and the production of sugar and "chancaca," alcohol, and rum:

Years.	Area under cultivation.	Production of sugar and chancaca.	Production of alcohol and rum.
	<i>Acres.</i>	<i>Metric tons.</i>	<i>Gallons.</i>
1911.....	86,879	178,533	2,050,965
1912.....	91,747	192,754	2,405,406
1913.....	97,745	183,954	2,346,772
1914.....	100,641	228,055	2,869,165
1915.....	105,770	262,840	2,673,686
1916.....	100,650	276,000	.....

Employees in the sugar plantations numbered 16,977 in 1911, 19,945 in 1912, 20,942 in 1913, 21,881 in 1914, and 24,433 in 1915. While no 1916 statistics are as yet available, it is said that more than 25,000 men and women are at present employed in the industry. The average daily wage paid to employees was (year 1913) 1.25 soles (\$0.60 United States currency). It is stated that the production cost of Peruvian sugar averages less than \$25 per metric ton in plantations where up-to-date equipment is used and about \$30 per metric ton under old-fashioned methods. The production of cane per acre is almost double that of Cuba, and labor costs infinitely less. Warehousing and storage costs are almost nil, owing to the fact that practically no rain falls in the coastal lands. When additional steamship tonnage is obtainable, the industry will advance with rapid strides. The field is worthy of investigation.

Cotton raising is another important industry in Peru, particularly in the northern coastal valleys adjacent to the port of Paita. A total of 46,571,797 pounds of cotton was exported in 1915, as compared with 53,491,774 pounds in 1914. The value of the 1915 exports was \$6,165,252. In addition there was exported, in 1915, 13,222 tons of cotton seed and 7,299 tons of cottonseed cake, the value of these commodities being \$898,269. Chile and Great Britain took most of the cotton seed and cottonseed cake. High freight rates and the low price until recently prevailing for cotton has greatly injured this industry in Peru. Home consumption is quite large, however, there being several cotton mills of importance in the Republic, one of which, the Peruvian Cotton Mill Co. (Ltd.), is capitalized at approximately \$500,000. This company paid 10 per cent in dividends during 1916. Approximately \$2,500,000 has been invested in the milling industry. It has been pointed out to the writer that a cottonseed-oil factory would do a good business in Peru. A total of about 6,500,000 pounds of raw cotton was used by the mills of Peru during 1915. A large portion of the cotton produced in Peru is similar to that grown in the irrigated regions of Egypt. It is mostly of a long fiber used largely to mix with wool used in underwear, stockings, etc., the resulting fabrics being very durable and showing little tendency to shrink. The average length of the Peruvian cotton fiber, as compared with other cotton fibers, is as follows: Sea Island (a small amount of this is raised in Peru), 1.61 inches; Egyptian, 1.41 inches; Peruvian, 1.30 inches; Brazilian, 1.17 inches; American upland, 1.02

inches; and Indian, 0.89 inch. Fair amounts of British capital, as well as considerable sums of German money, have been invested in the cotton industry.

Tobacco is raised in fair quantities, largely in the northern Provinces of Tumbes and Huancabamba. Large amounts are also imported, mostly from Ecuador. The National Tax Collecting Co. has a monopoly on this enterprise and manufactures or imports all the cigars, cigarettes, and similar products sold in the Republic. A total of 370,000,000 cigarettes were manufactured during 1915. Receipts from the tobacco monopoly for that year exceeded \$2,280,000.

Rubber is the one product of commercial importance of the eastern montaña region of Peru, all of this being gathered near the numerous affluents of the upper Amazon River and shipped in small steamers or flatboats to Iquitos, where it is transhipped to ocean steamers destined for ports of Europe and the United States. The exports of this commodity from 1908 to 1912 averaged from 4,500,000 to 5,500,000 pounds, and the trade of the rubber district during this period of prosperity averaged between \$20,000,000 and \$30,000,000 per annum. Following the rubber crash of 1913-14 the importance of this industry declined. Exports for 1913 were \$3,970,159; for 1914, \$2,169,445; for 1915, \$2,937,891; for 1916, \$3,391,459. The recent advance in the price of rubber will doubtless help to revive the industry, but it is not likely that it will regain its former importance for some time to come.

Hides, leather, and wool are also important products of the country. Arequipa is the center of this industry.

LOCAL ENTERPRISES IN THE REPUBLIC.

As a general illustration of development along local lines, there follows a brief description of the activities of the bourse at Lima.

As of March 15, 1917, there were listed on the bourse at Lima, Peru, 59 securities of a par value of Lp12,933,201. These included bonds and cédulas of a par value of Lp5,490,285; stocks of banks, national tax-collecting companies, insurance companies, and agricultural societies of a par value of Lp5,275,000; and stocks of mining, manufacturing, steamship, public utility, and other companies of a par value of Lp2,167,916. Of the 20 bonds and cédulas listed (not including internal obligations of the Republic of Peru), 6 bear interest at from $5\frac{1}{2}$ to 7 per cent, 13 at 8 per cent, and 1 at 9 per cent. All of these bonds were obligations of local enterprises.

There are listed on the bourse stocks of 36 enterprises, all Peruvian, of which no fewer than 29 usually receive dividends. The highest dividend paid during 1916 by any of the local institutions whose securities are listed was 40 per cent, this being distributed by the Compañía Internacional de Seguros del Peru. The shares of this company are quoted at 570 per cent of par bid; none offered. Shares of the Compañía de Seguros Rimac, on which 30 per cent was paid last year, are quoted at 550 per cent bid. The most widely distributed shares are those of the Compañía Recaudadora de Impuestos, the National Tax Collecting Co., capitalized at Lp1,500,000, par value Lp10, of which Lp9 is paid in. These shares are quoted at approximately Lp8.80@Lp9.

While there are a number of brokers executing orders on this bourse, it is hardly likely that many of them would be equipped to

handle foreign orders. Any of the Peruvian banks would handle transactions and ship securities. Commissions are nominal.

The following table shows the dividends paid by the principal Peruvian companies during 1915 and 1916:

Companies.	Capitaliza- tion.	Dividends paid.	
		1915	1916
BANKS.			
	<i>Peruvian pounds.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Banco del Peru y Londres.....	Lp500,000	8	(a)
Banco Italiano.....	200,000	7	10
Banco Internacional del Peru.....	100,000	4	4½
Banco Popular del Peru.....	200,000	5	7
Crédito Hipotecario del Peru.....	50,000	12	14
TAX-COLLECTING COMPANIES.			
Compañía Administradora del Guano.....	30,000	10	55
Compañía Salinera del Peru.....	100,000	12	12
Compañía Administradora de los Almacenes Fiscales.....	100,000	10	10
Compañía Recaudadora de Impuestos.....	1,350,000	8.9	8.9
INSURANCE COMPANIES.			
Compañía Internacional de Seguros del Peru.....	200,000	40	40
Compañía de Seguros Rimac.....	250,000	30	30
Compañía de Seguros Italia.....	200,000	10	15
Compañía de Seguros La Nacional.....	250,000	7	7
Compañía de Seguros La Popular.....	200,000	8	8
Compañías Unidas de Seguros.....	500,000		30
AGRICULTURAL SOCIETIES.			
Sociedad Agrícola San Nicolás.....	c 160,000	16	b 6
Sociedad Ganadera de Junin.....	110,000	13	(a)
Sociedad Agrícola Paramonga.....	400,000	15	(a)
Ingenio Azucarero Corpacancha.....	30,000	8	8
Sociedad Industrial La Estrella.....	110,000		
Ingenio de Huaura.....	35,000		
MANUFACTURING COMPANIES.			
Peruvian Cotton Mill Co.....	100,000		10
Fábrica de Sombreros "Fenix".....	9,963	8	(a)
TRANSPORTATION COMPANIES.			
Empresa del Muelle de Tambb de Mora.....	25,000	11	(a)
Peruvian Steamship Co. (Cía. Peruana de Vapores).....	c 300,000		16
PUBLIC-UTILITY COMPANIES.			
Empresa del Agua de Barranco.....	20,000	0	6
Empresa del Agua de Miraflores.....	8,000		6
Empresa del Agua del Paita y Colan.....	6,000	8	b 4
Empresa de Agua Potable de Piura.....	10,000	3	(a)
Empresas Eléctricas Asociadas.....	c 1,500,000		b 2
Sociedad Eléctrica de Arequipa.....	375,000	10	12
Peruvian Telephone Co. (Ltd.).....			5
Lima Railways (Ltd.).....	c 400,000	1½	12
MINING COMPANIES.			
Cerro de Pasco Mining Co.....	(d)		(d)
New Chuquitambo Gold Mines (Ltd.).....	50,000	3½	b 5
MISCELLANEOUS COMPANIES.			
Peruvian Corporation (preference).....	7,500,000	1	½
Municipal Theater Co. (Lima).....	c 7,650		6
Compañía Urbana Cocharcas.....	20,000	16	16

^a Dividend not declared to Mar. 15, 1917.

^b For a portion of year only.

^c Company also has bonds outstanding.

^d The Cerro de Pasco Co. is capitalized in a manner unlike any of the other companies listed here. It has issued 666,666 shares without par value, on which dividend payments at the rate of \$1 United States gold per quarter were begun late in 1916; in March, 1917, the dividend rate was increased to \$1.50 per quarter. This latter rate was maintained throughout 1917; \$1 of the dividend was considered as regular and \$0.50 as extra.

The list of companies in the table above, while not exhaustive, is fairly representative of the various classes of industry in Peru. It should be noted that dividend payments made by local Peruvian companies during 1916 were on the whole more liberal than those during 1915, reflecting the returning prosperity of the country.

URUGUAY.

INTRODUCTION.

The Republic of Uruguay is situated in the southeastern part of South America, between Brazil on the north, Argentina on the west, the River Plate on the south, and the Atlantic Ocean on the east. Its area is 186,926 square kilometers (72,153 square miles). Although the smallest among the South American Republics, it exceeds in size the whole of New England. No less than 668 miles of the country's boundaries lie on the ocean or on rivers. The land is gently rolling, sloping slightly toward the west, south, and east, thus forming the natural watersheds of the River Plate, the Uruguay River, and other streams and lakes. The principal waterways are navigable for the greater part of their courses.

The climate is temperate and pleasant, there being neither extreme cold nor excessive heat, and the country is generally highly suitable for its leading industries—farming and the raising of sheep and cattle. The rainfall is sufficient to provide a fairly abundant water supply and to cause the growth of magnificent grasses for cattle and sheep pasture.

According to the statistics for the year 1913 the population of Uruguay numbered 1,279,359 (at present it is about 1,450,000), about one-fifth of whom were of foreign birth—principally Italians and Spaniards, but with a sprinkling of British, Germans, French, and other nationalities. The Republic has made wise efforts to attract immigration and renders to newcomers whatever assistance is possible. The Government is thoroughly in harmony with the most advanced democratic principles, and citizens and residents are protected by a system of wise laws, assuring equality and thorough protection for the enjoyment of all rights.

Commercially the nation has attained considerable importance. Its exports for 1916 totaled \$76,382,043 United States currency and its imports \$34,952,294, the total foreign trade being \$111,334,337, as compared with \$111,951,501 in 1915, \$92,701,904 in 1914, and \$122,889,888 in 1913. Approximately 96 per cent of the total exports in 1916 consisted of animal products.

The principal port of Uruguay is Montevideo, where excellent docks and harbor works have been provided at a cost, including improvements, of about \$40,000,000. The population of the city, according to the census of 1913, was 359,526, it being by far the largest and most important place in the Republic. There are at least 2,867,600 square meters (3,429,650 square yards) of paved streets, and provision has been made for large additional expenditures along this line. There are about 600 streets in all, many wide and very prettily laid out. During the years 1909 to 1913, inclusive, 11,125 building permits were granted, as compared with

4,703 during the five previous years. The city is provided with three street-car lines, two telephone companies, excellent electric lighting, and comprehensive water and drainage systems.

Paysandu, Salto, Mercedes, Fray Bentos, Colonia, Minas, Melo, and San Jose de Mayo are important cities, their population varying from 15,000 to 30,000. There are also a dozen others with between 10,000 and 15,000 inhabitants. Paysandu, Salto, and Fray Bentos may be spoken of as particularly busy cities, all being river ports and outlets for considerable commerce in meats and packing-house products.

GOVERNMENT FINANCES.

EXTERNAL LOANS.

The public debt of Uruguay is largely of an external character, being represented by bonds largely held in Great Britain and on the Continent of Europe. During recent years an increasing amount of the external bonds have been purchased by investors in the Republic, and, since the war, a certain amount of financial aid has been rendered by American bankers. During the period since the outbreak of the war interest has been met on obligations, the amortization of the various external bonds having been postponed. The following statement shows the debt of the nation over a period of years; the amount outstanding is expressed in Uruguayan pesos, 1 peso being equal to \$1.034 United States currency:

	Pesos.		Pesos.
1860-----	2, 726, 880	1913-----	136, 298, 859
1870-----	17, 241, 020	1914-----	141, 144, 137
1880-----	48, 505, 069	1915-----	147, 559, 148
1890-----	89, 848, 851	1916-----	149, 645, 422
1900-----	125, 506, 953	1917-----	158, 874, 915
1910-----	134, 228, 877		

The history of the external debt of Uruguay virtually commences in the year 1871, when the Government issued through London bankers £3,500,000 6 per cent consolidated bonds at 72 per cent, the proceeds to be used to consolidate internal liabilities. Part of these bonds were exchanged for the £1,000,000 bonds of the Montevideo external loan of 1864 (sold in Europe at 60 per cent). From 1876 to 1878, inclusive, service on the bonds was suspended, but in the latter year £371,520 1½ per cent bonds were issued in lieu of unpaid coupons and interest on the original bonds was reduced to 2½ per cent for a period of five years.

In 1883, 5 per cent unified bonds were issued to the amount of £10,276,000 in exchange for the £3,467,500 6 per cent external bonds that remained outstanding and £6,808,500 internal bonds. The sinking fund on the issue was ½ per cent per annum, cumulative.

In 1888 £4,255,300 6 per cent bonds were issued abroad through Baring Bros. & Co. at 82½ per cent, the proceeds to be used to take care of floating debt and to provide for important public works. In 1890 an additional £1,980,000 6 per cent loan was contracted abroad.

During the year 1891 the Government, not being able to meet coupons, arranged for the conversion of the outstanding loans, as above, amounting to £16,724,300, with overdue interest to the amount of £625,573, total £17,349,872, into £18,130,905 3½ per cent consoli-

dated bonds. In accordance with the arrangement the 5 per cent unified bonds of 1883 received £105 in new bonds and the 6 per cent bonds of 1888 and 1890 received £115 and £113, respectively, the old bonds being canceled. Commencing with the consolidated three-and-a-halves the external bond issues of the Republic have been as follows:

Consolidated 3½ per cent loan of 1891.—Interest is payable quarterly, commencing February. For the payment of interest and sinking fund on this issue and for certain railway guaranties, 45 per cent of the gross customhouse receipts have been assigned, and if these are insufficient other revenues will be drawn on. The par values of the bonds are £20, £100, £500, and £1,000. The sinking fund of £205,000 per annum was operated in 1895 and between 1905 and 1914. In November, 1914, owing to the decrease in customs receipts, the sinking-fund operations were suspended, although interest was regularly paid. The operations of the sinking fund are to be resumed one year after the termination of the war. There are outstanding at present £16,367,980 of the bonds, of which approximately 69.73 per cent are held in Europe and 30.27 per cent in Uruguay, as compared with 86.27 per cent in Europe and 13.73 per cent in Uruguay in 1892. Interest is payable in Montevideo and London.

Five per cent bonds of 1896.—Interest is payable quarterly, commencing January, at Montevideo and London. The par values of the bonds are £20, £100, £500, and £1,000. The sinking fund of 1 per cent per annum purchases bonds at below par or draws them at that figure. The bond issue is a first charge on 5½ per cent of the customhouse receipts. The sinking fund was suspended November, 1914, until one year after the termination of the war. Interest is being regularly paid. The bonds were issued to provide funds for the formation of the Banco de la República. The original issue was £1,667,000 bonds and the offering price 71½ per cent. Outstanding bonds amount to £934,400.

Five per cent conversion bonds.—The par value of the bonds is 100 pesos (\$103.42 United States currency; £21 5s.). Interest is payable quarterly at Paris, London, and Montevideo. The sinking fund of one-half per cent, cumulative, began in the year 1906. This sinking fund has been suspended from November, 1914, until one year after the termination of the war. Bonds are secured by 24 per cent of the customhouse receipts. The original issue was £6,912,836, mostly sold to the Banque de Paris et des Pays-Bas at 90 per cent and resold by them to the public at 97 per cent. The British portion of the loan was publicly offered at 96¼. The amount outstanding at present is £6,239,648, of which approximately 70.74 per cent is held in Europe and 29.26 per cent in Uruguay.

Five per cent bonds of 1914.—Interest is payable January and July in London and Belgium. The sinking fund of 1 per cent per annum, cumulative, has been suspended until one year after the termination of the war. The loan is secured by certain customs revenues. The proceeds of the issue have been used to pay off floating debt and to increase the capital of the Banco de la República. The original issue (all outstanding) was £1,072,360.

Five per cent public works loan of 1909.—The sinking fund is 1 per cent per annum. The loan was issued in Paris at 97 per cent, the

proceeds being used to carry out certain public works. It is not secured by any of the receipts of the customhouse. The original issue was £1,276,672 (30,000,000 francs), and the amount outstanding is £1,203,996. The bonds are not quoted in London.

The quotations of the various issues listed on the London Stock Exchange follow:

Bonds.	High price since 1911.	Price January, 1918.
3½ per cent consolidated bonds.....	79	75
5 per cent loan of 1896.....	102	83
5 per cent conversion bonds of 1905.....	102½	83
5 per cent gold bonds of 1914.....	90½	77

The above issues and the 5 per cent bonds of 1909 are quoted on the Paris Bourse. The 3½ per cent bonds and the 5 per cent bonds of 1905 were quoted at Montevideo May 15, 1917, at 63 and 85.

INTERNAL LOANS.

The internal debt of Uruguay as of December 31, 1916, stood at approximately 26,432,804 pesos. This included 3,801,000 pesos 6½ per cent conversion bonds issued as per law of November 8, 1916. These bonds are quoted on the "Bolsa" (stock exchange) at Montevideo at approximately 96.50. Other important issues included the Debt of Guaranty, 4 per cent for 2,630,200 pesos, which is now held by the Government itself, although still held alive. The internal unified debt, which was originally issued to the amount of 7,900,000 pesos, is outstanding to the amount of approximately 1,448,650 pesos. Although this is an internal loan, approximately 1,000,000 pesos is held in England. The loan of the State Insurance Bank, which bears interest at 5 per cent and which is outstanding to the amount of 3,000,000 pesos, included in the total internal debt, is held by the State. The remainder of the internal debt is largely made up of State Electric Works Department 5 per cent bonds, Treasury warrants, land-grant bonds, mortgage-bank (Banco Hipotecario) certificates, and Uruguayan Eastern Railway guaranty bonds. In addition there are outstanding so-called "international bonds" to the amount of 2,156,550 pesos, the outstanding balance of an issue of the Brazilian Loan of 1894 to the amount of 3,500,000 pesos.

Of the total public debt of Uruguay, briefly discussed in the preceding paragraphs, approximately 10,000,000 pesos bonds are the property of the Government or of institutions controlled by the Government. The real national wealth of Uruguay is estimated at 1,500,000,000 pesos, of which Government properties constitute 100,000,000. Railway guaranties and interest payments amounted in 1913 to 8,607,045 pesos.

MORTGAGE BANK CERTIFICATES.

The Banco Hipotecario, or State Mortgage Bank, has been a national institution since the year 1912. The capitalization December 31, 1916, consisted of 3,703,829 pesos stock of an authorized total of 5,000,000 pesos. "Cedulas" and "titulos" in circulation amount

to 36,766,700 pesos. These "cedulas" and "titulos" are similar to those in circulation in Argentina, Chile, and elsewhere and are issued in series, the "cedulas" comprising series "A" and "B" and the "titulos" series "C" to "R." The average price for the "titulos" varies between 94 and 96, according to the length of maturities. The "cedulas" and "titulos" (certificates) are secured by real estate valued in excess of 73,000,000 pesos and are favorite investments in Uruguay. A fair amount of them is held abroad, interest being payable in London, Paris, and Amsterdam. The institution cost the Government 5,000,000 pesos and is valued to-day at 12,000,000 pesos. The bank pays annually to the Government as interest (5 per cent) and sinking fund (1 per cent) on bonds the sum of 300,000 pesos.

MUNICIPAL EXTERNAL BONDS.

The city of Montevideo has outstanding an issue of 6 per cent bonds of 1889, the interest on which is payable in June and in December in Great Britain. The cumulative sinking fund has been suspended during the war. From 1892 to 1894 the interest on these bonds was paid at the rate of 4 per cent per annum; from 1895 to 1897 at 4½ per cent, with ½ per cent sinking fund; from 1898 to date, 5 per cent per annum interest, with ½ per cent sinking fund from 1898 to 1914. The original issue was for £1,376,596 bonds (sold at par, 1889), of which £980,718 remain outstanding. Certain taxes are hypothecated for the service of the loan, which is an obligation both of the municipality and of the National Government. The high price since 1911 was 103; the low, 64½; and the present (January, 1918), approximately 74 per cent. Bonds are obtainable in amounts of £20, £100, £58, £95, £500, and £1,000.

No obligations of Uruguayan municipalities other than Montevideo are known abroad and none are quoted on the stock exchange at Montevideo.

RECENT FINANCIAL CONDITIONS.

Uruguay, in common with other Latin American Republics, has suffered severely through decreases in customs revenues and other income. For the fiscal year ended June 30, 1915, a deficit of 933,031 pesos resulted—an amount considerably below the expected total, however, inasmuch as the estimated deficit, as stated in the budget, was 6,189,823 pesos. The estimated deficit for 1916-17 was stated to amount to 2,792,849 pesos.

BANKS AND BANKING.

Uruguay possesses a banking institution similar to the Bank of the Argentine Nation, entirely under State ownership. This is known as the Bank of the Republic (Banco de la República), and was established in the year 1896. Its original capitalization was 4,850,000 pesos, representing a large part of the proceeds of the £1,667,000 5 per cent external loan of 1896, which was sold in Europe at 71½. It was provided in the original charter that the bank should pay from its profits the 5 per cent interest and 1 per cent amortization on the loan each year, and that the balance should be appropriated, one-half to the Government, and one-half to the bank—to be

added to its capital. Its capitalization at the close of the last fiscal year had grown to 13,883,434 pesos.

In 1914 the bank's charter was changed, and provisions were made whereby the entire net profits—less interest and amortization on the loan, and 50,000 pesos per annum to be used toward the construction of the Legislative Palace—were to be contributed to the bank. Profits for the year 1913 amounted to 1,569,954 pesos and payment upon the loan to 470,000 pesos. The profits since the outbreak of the war have not been so large—amounting in 1916 to 1,281,790 pesos. Owing to the suspension of the sinking fund on the loan, only the interest upon the outstanding balance was paid, this amounting to 220,705 pesos. After the payment of this sum and the 50,000 pesos toward the construction of the legislative palace, there remained 1,011,084 pesos surplus, which was added to the capitalization and resources of the bank.

The Bank of the Republic has a monopoly of the issuing of bank notes. Its charter authorizes the issue of bills of 10 pesos and larger denominations, payable at sight in gold, up to three times the amount of its paid-up capital, and smaller bills up to 50 per cent of the same capital.

The condition of the department of issue as of December 31, 1916, was as follows:

	Legal limit.	Amount in circula- tion.	Balance issuable.
	<i>Pesos.</i>	<i>Pesos.</i>	<i>Pesos.</i>
Large bills.....	27,766,880	27,396,120	370,760
Small bills.....	6,941,721	6,631,664	310,057
Total.....	34,708,601	34,027,784	680,817

Large bills to the amount of 2,537,700 pesos were also in circulation against gold deposited in the legations.

The bank is required to have on hand at all times an amount of gold equal to not less than 40 per cent of the demand deposits and large bills in circulation. Shortly after the outbreak of the war the limit of the issue of large bills was reduced from 36,000,000 pesos to 26,000,000 pesos, the bank being exempted from its obligation to redeem its bills during a period of six months. Since 1914 the legal limit has been increased to the amount stated in the table above. As against the 27,396,120 pesos of large bills in circulation, the gold reserve of the bank totaled 12,279,190 pesos.

The Bank of the Republic handles a general commercial business, and has, in addition to its Montevideo bank, 25 branches throughout the Republic. The interest rates allowed are 1 per cent on accounts current, 3 per cent on fixed deposits, 4 per cent on six-months deposits, 3 per cent in the savings bank, etc. The institution has proved of immense value to the nation and has had much to do with preserving the stability of Uruguayan currency during the most trying periods of the war. In this respect Uruguay enjoys a most enviable position among the nations of the world.

Mention has already been made on page 348 of the State Mortgage Bank, the 3,703,829 pesos shares of which are owned by the Govern-

ment. Discussion concerning the operations of the State Insurance Bank (Banco de Seguros del Estado) will be reserved until a later paragraph.

The four important British banks (see Argentina, p. 43) operate branches in Uruguay, as do the National City Bank of New York, the German Transatlantic Bank, the Italian-Belgian Bank of Brazil, of São Paulo, and two Argentine banks, the Bank of Galicia and Buenos Aires and the Spanish Bank of the River Plate. The French bank of Supervielle & Co. also maintains a branch at Montevideo.

Three of the most important local banks are the Italian bank (Banco Italiano del Uruguay), the Commercial Bank (Banco Comercial), and the Credit Bank (Banco de Crédito). The Italian bank, located at Montevideo, was incorporated in 1887. Its authorized capitalization is 5,000,000 pesos, of which 4,000,000 pesos has been issued and is outstanding. Reserve funds amount to 979,375 pesos and provisional fund to 150,000 pesos. Branches are maintained at Paysandu and Mercedes. The bank allows 1 per cent on accounts current and deposits up to 30 days, 4 per cent on 60-days to three-months deposits, 5 per cent on six-months deposits, and $5\frac{1}{2}$ per cent on yearly deposits. The shares of the bank are listed on the Montevideo Bolsa (Stock Exchange), and a recent quotation (April, 1917) was 135.

The Commercial Bank was established in the year 1857, its principal founders being two Englishmen, Messrs. Jackson and O'Neill. Its growth has been steady and to-day it is an institution of considerable importance. The authorized capital of the bank is 4,000,000 pesos, of which 2,000,000 pesos are outstanding. Reserve funds total 810,000 pesos. Interest rates allowed by the bank are: None for accounts current, $3\frac{1}{2}$ per cent for three months, 4 per cent for six months, and 4 per cent for one year. The rates allowed by the savings bank are 4 and 5 per cent per annum on three and six months' accounts covering deposits of from 1 peso to 5,000 pesos. Recent quotations (April, 1917) of 155 and 156 were recorded for the bank's shares, these being listed on the Montevideo Stock Exchange. The bank's profits for 1915, a year of depression, were 117,737 pesos and the dividend $8\frac{1}{2}$ per cent.

The Credit Bank was founded in 1908. Its authorized capitalization is 3,000,000 pesos, of which 1,500,000 pesos are outstanding. Reserve funds total 178,000 pesos. Shares are quoted at 110. The bank makes more liberal interest allowances than most of the other institutions, allowing 1 per cent on sight deposits, 2 per cent on 30-days' deposits, 5 per cent on three months, 6 per cent on six months, $6\frac{1}{2}$ per cent on one year, and 7 per cent on two years. Five per cent and 6 per cent are the rates allowed by the savings bank.

INSURANCE.

The Government of Uruguay established in the year 1911 the State Insurance Bank (Banco de Seguros del Estado), which in accordance with the law is privileged to enjoy a monopoly of the insurance business. Despite its privilege, however, the State has not made use of its right to prohibit the operations of private companies. The bank is capitalized at 3,000,000 pesos and handles at the present time about 37 per cent of the fire insurance business

of the Republic. It covers a variety of fields, among them fire, life, automobile, liability, marine and river, industrial, animal, rail, plate glass, etc. Fire insurance premiums paid to the bank in 1916 amounted to 319,439 pesos; automobile insurance, to 26,510 pesos; accidents to workers, 166,561 pesos; hail, 35,592 pesos; life, 694,396 pesos; marine and river, 156,466 pesos; and plate glass, 9,315 pesos. The profits of the bank during a recent fiscal year amounted to 482,889 pesos, of which 282,633 pesos was credited to reserve fund and 200,256 represented profits.

No new fire insurance companies have been allowed to enter the country since 1911, there being to-day 19 private companies in the field; 14 of these are British or British Colonial, 1 German, 1 Italian, 1 French, and 2 (the Previsora Uruguaya and L'Unión) local. In accordance with the schedule promulgated in 1916, each company operating in this field is required to make a deposit of 30,000 pesos and to pay a license tax. Any foreign company entering the field upon investing 150,000 pesos in either real estate or in public bonds deposited in the Bank of the Republic is considered nationalized and allowed to do business under conditions similar to native companies. Total premiums paid to all fire insurance companies in Uruguay, including the State Insurance Bank, amounted in 1915 to 682,884 pesos, as compared with 706,430 pesos in 1914.

RAILWAY DEVELOPMENT.

The development of the network of railways that traverses the Republic of Uruguay has been carried on almost wholly by the investment of British capital. The first mileage was built shortly after the granting of a concession in the year 1865 for a line from Montevideo to Rio Negro. Construction work was carried on slowly at first and at the close of the year 1879 only 359 kilometers (223 miles) of line were in operation. During the two following decades progress was more rapid, 1,670 kilometers (1,038 miles) of railway being worked at the close of 1899. In 1912 2,516 kilometers (1,563 miles) were in operation, in 1914 2,578 kilometers (1,602 miles), and in 1917 approximately 2,650 kilometers (1,647 miles)—all of 4-foot 8½-inch (standard) gauge.

Although there is only one tunnel in the entire Republic, construction has generally been fairly costly. Curves, owing to the undulating nature of the country, are quite numerous, and there are upward of 300 bridges varying in length from 30 to 2,500 feet, the most important bridge spanning the Rio Negro. In proportion to the area of the country, Uruguay stands first in South America and second in Latin America in railway development, Cuba occupying first place. During the fiscal year 1912-13, the banner year for railways in Uruguay, 1,838,213 passengers were carried, the total passenger miles traversed being 111,533,942. The freight tonnage amounted to 1,742,425. The paid-up capital of the various railways exceeds 74,000,000 pesos, and the guaranteed capital amounts to more than 40,000,000 pesos.

The starting point for the railway system is naturally Montevideo, which is the terminus of the Central Uruguay Railway, the most important line in the Republic. All the other railways of the Republic act as feeders to this line. The following table shows the

important railway lines, the mileage operated June 30, 1917, and the earnings for 1916-17:

Railway lines.	Miles operated.	Gross receipts for 1916-17.	Railway lines.	Miles operated.	Gross receipts for 1916-17.
Central Uruguay Railway:			Northwestern of Uruguay		
Original line.....	271	£688,503	Railway.....	113	£295,778
Northern Extension.....	185	132,159	Uruguay Northern Railway..	73	£21,404
Eastern Extension.....	311	262,035	Uruguay East Coast Railway..	78	.....
Western Extension.....	211	94,101	Durazno to Trinidad line		
Midland Uruguay Railway.....	319	155,114	(State Railway).....		

£ Pesos.

CENTRAL URUGUAY RAILWAY AND EXTENSIONS.

As indicated in the table above, the Central Uruguay Railway system is operated in four sections—the Central Uruguay Railway Original Line (including the Northeastern Line), 271 miles; the Northern Extension Railway, 185 miles; the Eastern Extension Railway, 311 miles; the Western Extension Railway, 211 miles; total mileage, 978. The Main, or Original, Line traverses the central portion of the country from Montevideo, where a terminal costing more than £140,000 is owned, to the Rio Negro—273 kilometers (170 miles). The first 100 kilometers (62 miles) of country contains some of the best garden and agricultural lands in the Republic. En route to the Rio Negro the line passes through the most populous sections of the country, including several cities, such as Santa Lucia, Florida, etc., with populations varying from 8,000 to 12,000. Since August 25 a 33-kilometer (21-mile) line to San Jose connects with the Western Extension Railway (see subsequent paragraph). San Jose has a population of about 15,000, and is a town of importance. The Northeastern Line, the earnings of which are included in the statement of the Original Line, extends from Toledo, 25 kilometers (16 miles) from Montevideo, to Minas, 125 kilometers (78 miles) from Toledo. Pando, an important city, is passed through. The gross receipts of the Original Line and Northeastern Line for the year ended June 30, 1918, totaled £970,879, as compared with £688,503 in 1916-17, £653,442 in 1915-16, and £738,143 in 1912-13.

The capitalization of the Central Uruguay Railway as of June 30, 1917, not including securities of the various extensions outstanding in the hands of the public, was as follows:

Securities.	Amount outstanding.	High price since 1911.	Approximate price January, 1918.
Ordinary stock.....	£2,000,000	115	53
Preference stock, noncumulative 5½ per cent.....	800,000	112	7½
Permanent 6 per cent debenture stock.....	1,200,000	131	105
4 per cent Western Extension debentures.....	1,000,000	93	72
5 per cent debenture stock.....	1,292,470	91½	78
6 per cent second debenture stock.....	250,000	100	91
Total.....	6,542,470		

£ Par £10; par value of other issues £100.

The total capitalization of the Central Uruguay Railway and extension railways outstanding in the hands of the public is approximately £10,036,666.

The ordinary stock received 1 per cent in 1916, nothing in 1915, $2\frac{1}{2}$ per cent in 1914, $6\frac{1}{2}$ per cent in 1913, 7 per cent in 1912, $5\frac{1}{2}$ per cent in 1911, etc. Despite the fact that maintenance expenses will have to be increased in the not distant future, the stock may be said to offer fair possibilities as a semispeculative investment. The preference stock likewise is fairly attractive owing to the fact that it yields more than 7 per cent. The bonds also are selling well below normal. A general advance in freight and passenger rates is looked for in the near future, petitions having been put before the Government to that effect.

Before discussing briefly the various extension railways, it should be stated that the total gross receipts for all of the lines comprising the system in 1917-18 totaled £1,514,438, as compared with £1,198,318 in 1916-17, £1,086,868 in 1915-16, and £1,243,393 during the pre-war year 1912-13. The railway, despite the important part it has played in the development of the Republic, has experienced a long period of depression, and shareholders have not been reaping the hoped-for returns on their capital outlay. The property is an excellent one and should recover rapidly following the return of prosperity.

The Northern Extension of the Central Uruguay Railway is a continuation of the main line northward from the Rio Negro to the Brazilian frontier at Rivera, thence across the boundary to Sant' Anna do Livramento—a total of 185 miles. The beef factories of the latter place furnish a considerable amount of traffic to the "Central's" line. The Rivera-Sant' Anna do Livramento line is laid with three rails to accommodate also the Brazilian line. A tri-weekly passenger-train service is in operation between Montevideo and Rivera, connecting with southern Brazilian points such as Santa Maria, Rio Grande do Sul, and Porto Alegre. The Saturday train from Montevideo affords direct connections with the weekly through train to São Paulo, and it is expected that a fair amount of traffic will develop between the River Plate cities and São Paulo and Rio de Janeiro. The time between Montevideo and São Paulo is $108\frac{1}{2}$ hours and the distance more than 1,800 miles. Through dining and sleeping car service is maintained.

The Northern Extension is worked by the "Central" on a percentage basis, between 40 and 55 per cent of the gross receipts accruing to the latter line. The capitalization consists of £1,000,000 stock and £627,150 5 per cent permanent debenture stock. The stock, which has a par value of £10, received in dividends in 1909-10, 7s. 3d.; in 1910-11, 8s. 6d.; in 1911-12 and 1912-13, 9s. 6d.; 1913-14 to 1915-16, 8s. (4 per cent). The high price for the stock since 1911 was £9 $\frac{3}{4}$ and the January, 1918, price about £6 $\frac{1}{4}$. The debentures are quoted (January, 1918) at approximately 79, as compared with the high price of 111 during the past five years. Gross receipts of the extension for 1917-18 amounted to £179,673, as compared with £132,159 in 1916-17, £113,163 in 1915-16, and £147,143 in 1912-13. Net profits for 1917-18 had not been published at the time this report was written. It is certain, however, that they exceeded by a very con-

siderable margin the 1915-16 total of £55,576 and the 1914-15 total of £42,845. In 1913-14 the net profits totaled £59,390 and in 1912-13, £75,531. Pastoral products form practically all of the freight traffic.

The Central Uruguay Eastern Extension Railway is worked on practically the same basis as the Northern Extension Railway (40 to 55 per cent of gross receipts). The line starts from Toledo, on the "Central's" main line, about 16 miles from Montevideo, and extends to San Ramon, Nico Perez, and Melo. There is a branch from Nico Perez to Treinta y Tres, and the total mileage is 311. Triweekly trains run in each direction between Montevideo and Melo and Treinta y Tres, and daily, except Sunday, between Montevideo and Nico Perez.

Most of the country served by this extension of the system is well watered and suitable for agriculture as well as stock raising. There are also considerable areas of forest lands. The population of Melo is nearly 15,000. Gross receipts for 1917-18 amounted to £269,785, as compared with £262,785 in 1916-17, £216,818 in 1915-16, and £251,712 in 1912-13. Net profits for 1915-16 totaled £105,902; for 1914-15, £92,865; for 1913-14, £118,710; and for 1912-13, £129,239. Dividends have amounted to the following (par value of the £860,000 ordinary stock outstanding, £10): 1910-11, 10s. 6d.; 1911-12, 11s. 6d.; 1912-13, 9s. 6d.; 1913-14, 7s. 6d.; 1914-15, 5s. 3d.; 1915-16, 5s. 9d. In addition to the ordinary shares, the company has outstanding £860,000 5 per cent noncumulative preference shares and £1,146,666 permanent 5 per cent debenture stock. The high prices since 1911 and the present prices of the shares and debenture stock are here indicated:

Securities.	High price since 1911.	Price January, 1918.
Ordinary stock.....	9½	6½
Preference stock (5 per cent).....	10½	7½
Permanent 5 per cent debentures.....	111	80

The Central Uruguay Western Extension Railway connects with a branch of the main system at San Jose and extends from there to Mal Abrigo and Mercedes, with branches from Mal Abrigo to Rosario and Puerto del Sauce and from Rosario to Colonia, the total mileage operated by the extension being 211. Unlike the results on other sections of the system, gross receipts for the year 1917-18 were less than for the previous years, amounting to £94,101, as compared with £103,445 in 1914-15 and £106,394 in 1912-13. Net profits for 1912-13 were £37,328, and in more recent years somewhat less. As indicated, the earnings of this section, whose territory is somewhat thinly settled, average considerably less than those of the other sections. A considerable sum is due the parent company for advances. Daily passenger service is maintained between San Jose and Mal Abrigo and triweekly service beyond that point. Mercedes, the terminus of the main division, is a center of the jerked-beef industry and has about 10,000 inhabitants.

During the pre-war year 1912-13 there were handled over the Central system 1,657,986 passengers. Approximately 50 passenger trains are handled at the terminal daily, this including several trains carrying sleeping and dining cars. There were also 1,346,396 head of live stock handled, together with a fair quantity of wool, wheat, maize, sand, limestone, other stones, and firewood. Business prospects for the system, except possibly the Western Extension, seem very much brighter, and results for the 12 months of 1917-18 have exceeded those of the year 1912-13. The following table shows the gross receipts for 1917-18 and the increase or decrease as compared with 1916-17:

Lines.	Fiscal year 1917-18.	Increase or de- crease.
Central Railway proper with Northeastern Line.....	£970,879	+ £282,376
Northern Extension.....	179,673	+ 47,514
Eastern Extension.....	269,785	+ 7,000
Western Extension.....	94,101	- 20,770
Total.....	1,514,438	+ 316,120

The passenger fare from Montevideo to Rivera is 14.10 pesos (May 31, 1917).

In May, 1918, the Government opened negotiations for the acquisition of the entire Central of Uruguay system.

MIDLAND URUGUAY RAILWAY.

Second in importance among the railways of Uruguay is the Midland Uruguay Railway, operating 319 miles, extending from Paso de Toros, a station 2 kilometers ($1\frac{1}{4}$ miles) from Rio Negro station on the Central Uruguay Railway, and running northward and westward. The main line passes through Tres Arboles, Algorta, and Paysandu, terminating at Salto (196 miles). There is direct passenger-train service weekly in each direction and mixed-train service twice a week. Branch lines extend from Algorta to Fray Bentos (87 miles) and from Tres Arboles to Piedra Sola (36 miles). Fares from Rio Negro (Montevideo to Rio Negro, 8.20 pesos) to Paysandu, Salto, and Fray Bentos amount to 5.30 pesos, 8 pesos, and 9.10 pesos, respectively. The three last-named cities are of considerable commercial importance and furnish a fair amount of freight and passenger traffic. Despite this fact, earnings of the line have never come up to expectation and payments on securities are made largely through the medium of Government guaranties. In 1917-18 the gross earnings amounted to £156,243, as compared with £155,345 in 1916-17, £112,727 in 1915-16, £113,109 in 1914-15, and £136,422 in 1912-13. Net receipts for 1916-17 probably totaled approximately £50,000, as compared with £38,989 in 1912-13 and smaller amounts in 1913-14 and 1914-15. The line carries a guaranty from the Government of $3\frac{1}{2}$ per cent on £5,000 per kilometer, repayable after profits of 6 per cent on £5,000 per kilometer have been earned. This subsidy will expire in 1928 and 1930.

The existing capitalization of the Midland Uruguay, together with quotations for the securities, is shown in the following table:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary stock	£600,000	41	17
5 per cent redeemable prior lien debenture stock	a 570,741	104	84
5 per cent debenture stock, redeemable	a 1,189,443	93	56
	2,360,184		
5 per cent Midland Uruguay Extension debenture stock	200,000	93½	64
Total	2,560,184		

a The operations of the sinking fund have slightly decreased these amounts.

The entire issue of £100,000 ordinary shares of the Midland Uruguay Extension Railway is owned. This extension represents the line between Tres Arboles and Piedra Sola. Its returns are included in the income account of the Midland Uruguay Railway. No dividends have been paid on the ordinary shares of the Midland Uruguay Railway since December, 1896.

NORTHWESTERN OF URUGUAY RAILWAY.

The Northwestern of Uruguay system consists of 113 miles of standard-gauge railway, extending from Salto, the terminus of the Midland Uruguay Railway, in a general northerly direction to Palomas, Cabellos (where connections are afforded with the Uruguay Northern Railway), and Cuareim (opposite Quarahim, Brazil). Salto is opposite Concordia, Argentina, an important railway center located on the Entre Rios and Argentine North Eastern Railway lines, and some traffic is interchanged. At Cuareim an international bridge has been constructed and a third rail laid to afford connections with the Brazil Great Southern Railway, which runs from Quarahim, Brazil, northward.

The railway's gross receipts for 1917-18 totaled 302,303 pesos, as compared with 296,553 pesos in 1916-17, 268,870 pesos in 1915-16, and 233,282 pesos in 1914-15. The Government guarantees 3½ per cent on £5,000 per kilometer on 50 miles of the line, this guaranty being repayable out of surplus profits and expiring in 1925. The capitalization and prices of securities of the company are shown in the following table:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary shares	£120,120	33	7
6 per cent noncumulative preference shares (first)	583,850	73	23
5 per cent noncumulative preference shares (second)	293,173	41	8½
6 per cent first debenture stock	400,000	111	78
6 per cent second debenture stock (redeemable)	72,625	102	74
	1,469,768		

No dividends have ever been paid on the second preference or ordinary stocks; 1 per cent was paid on the first preference stock in 1905-6, 2 per cent 1906-7 to 1908-9, 2½ per cent in 1909-10, 3 per cent each in 1910-11 and 1911-12, 2½ per cent in 1912-13, and none since.

The country served by this railway is mostly pastoral, although there are agricultural areas and timber and mineral lands. The railway serves as a means of routing traffic around a series of rapids that obstruct navigation in the Uruguay River between Salto and Monte Caseros. Sheep are handled in fair numbers, destined to the refrigeration plants at Montevideo and elsewhere, and live cattle are shipped to Fray Bentos (Liebig plant, etc.).

The Quarahim International Bridge Co., which was formed to erect an international bridge across the Quarahim River, the boundary between Uruguay and Brazil, is capitalized at £10,000 shares and £100,000 (£125,000 authorized) 5 per cent guaranteed first debenture stock. The shares are owned and the bonds guaranteed jointly by the Northwestern of Uruguay Railway and the Brazil Great Southern Railway. The debenture stock is secured on the property and will be redeemed through the operations of a sinking fund of one-half per cent commencing operations in 1920.

The Northwestern of Uruguay Railway operates triweekly passenger-train service in both directions between Salta and Quarahim. Connections are afforded at the latter point with trains for Uruguayana, Itaquy, and other points in southern Brazil.

URUGUAY NORTHERN RAILWAY.

The Uruguay Northern Railway is a 73-mile line, extending from Isla de Cabellos on the Northwestern of Uruguay Railway (where connections are afforded with Quarahim, Salto, Paysandu, Rio Negro, and Montevideo) to San Eugenio on the boundary with Brazil. The earnings of the railway are not large, the total for 1917-18 amounting to £21,545, as compared with £21,423 in 1916-17, £21,217 in 1915-16, £18,748 in 1914-15, £23,636 in 1913-14, £30,196 in 1912-13, and £27,986 in 1911-12. Net earnings have been from £5,000 to £11,000 per annum. The capitalization of the company consists of the following:

Securities.	Capitalization.	High price since January, 1911.	Price January, 1918.
Ordinary shares.....	£100,000	(a)	(a)
Preference shares, 7 per cent cumulative.....	250,000	49	14
Perpetual debenture stock ^b	449,400	78	41
5 per cent prior lien debenture stock.....	49,002	(a)	(a)

^a Not quoted.

^b Entitled to 3½ per cent fixed and two-thirds of the net profit up to 1½ per cent on £5,000 per kilometer; interest rate during 1916 was 79s. 9d.; highest rate paid during recent years was 95s. 4d., which was paid in 1913.

The Government guarantees 3½ per cent on £570,776 capital, or £19,977 per annum. The 1916-17 freight traffic was composed chiefly of animal products (mostly live stock). Passenger traffic was limited to three trains per week in each direction. The country traversed is quite thinly settled, although capable of considerable development. The 1916 dividend was at the rate of 2 per cent, as compared with 1½ per cent the previous year. No dividends were paid during 1913-14, and 1½ to 2 per cent per annum from 1910 to

1912-13. Preferred dividends in arrears at the end of 1916 amounted to approximately £375,000.

URUGUAY EAST COAST RAILWAY.

The Uruguay East Coast Railway operates about 78 miles of road, starting from Olmas, a station on the Central Uruguay (North-eastern) Railway, and running to Maldonado, in the State of Maldonado. A large part of the traffic of the road is due to the fact that the railway serves the seaside resorts of Puenta del Este and Piriapolis, the summering places for numerous residents of Montevideo and Buenos Aires. The freight traffic is divided between agricultural and pastoral products and fish destined for the Montevideo markets. An extension of the line northward to Rocha is projected.

Early in 1918 the Government of Uruguay purchased this railway, giving in exchange for the property 5 per cent Government bonds to the amount of 2,843,500 pesos, with an annual sinking fund of 1 per cent, cumulative.

The capitalization of the company June 30, 1917, was as follows:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary stock (par £1).....	£ 125,000	7½	7½
5 per cent first mortgage gold bonds.....	£ 308,000	11	68
4 per cent cumulative debenture stock.....	£ 185,000	66	30
Total.....	£ 619,000		

£ Approximate.

No dividends were being paid on the ordinary stock. The 4 per cent debenture stock received 4 per cent in 1917, 3 per cent in 1916, and 4 per cent per annum during the several years previous. The railway's best year was 1912-13, when the earnings amounted to 193,234 pesos gross and 39,404 pesos net. Securities of the company were not widely distributed.

DURAZNO-TRINIDAD LINE (STATE RAILWAY).

The State railway line from Durazno to Trinidad was taken over from private owners as an unfinished project some time ago. The plan for future construction is a rather elaborate one, which is likely to be deferred until after the close of the war. The Farquhar-Pearson scheme to build a line diagonally across the Republic from the port of Colonia, where docks and terminals were to have been constructed, to San Luis, on the Brazilian border, has fallen through, so far as the promoters are concerned.

RECORD OF OPERATIONS AND OUTLOOK FOR FUTURE.

During the fiscal year ended June 30, 1916, passenger traffic handled by the various Uruguayan railways increased more than 19 per cent and freight earnings about 16½ per cent. Despite this fact and

despite the Government guaranties on various lines, dividend payments were mostly quite small. A glance over the record of railway operations covering a period of a dozen years fails to show any startling results. The European war has put a stop to immigration and otherwise disturbed the economic condition of the Republic, and this has been detrimental to the development of the railways. The returns from the live-stock and meat traffic added to the revenues of the various lines during 1916-17. This traffic will continue to be extremely heavy as long as the war lasts. Although better things are expected after the war, the immediate outlook for railways in general throughout the Republic does not indicate that any extraordinary results will be realized. Nevertheless Uruguay railway shares and debentures are selling at extremely low figures, and there are prospects that they will some day bring far better prices. Uruguay needs additional railways through some of the less developed sections of the country. Whether these lines would pay immediately after completion is somewhat a matter of conjecture, yet their construction would be of inestimable value to the nation, and capital invested in them would probably result to better advantage than if placed in the building of lines competing with railways already in the field.

The Government has met its railway guaranties during the most trying period of the recent financial depression.

Several of the Uruguayan railway companies have recently petitioned the Uruguayan Government for increases in tariff rates varying from 10 to 25 per cent per annum. The Government in the case of the Central Uruguay Railway allowed the company to make a surcharge on a large variety of articles of freight, also to raise the price of sleeping berths 1 peso. The Government reserves the right, however, to withdraw the surcharging privilege upon giving three months' notice on any date after October 1, 1917.

In May, 1917, international through train service was established between Montevideo and São Paulo, Brazil. The Saturday evening through train via the Central Uruguay Railway connects at Sant' Anna do Livramento the following afternoon with the through train for Santa Maria, Brazil. From the latter point direct service is maintained to São Paulo. Sleeping and dining car service is provided.

PROJECT FOR SYSTEM OF GOVERNMENT RAILWAYS.

The Uruguayan Government voted recently to employ 10,000 pesos on preliminary surveys for a system of State railways, with the idea of carrying on active construction work as soon as possible.

It was announced in June, 1917, that the Government would contract with the Uruguay Railway for the purchase of the 23 miles of line built between Rocha and Paloma Port, together with equipment, buildings, workshops, etc., as well as rails, ties, and materials of various descriptions that had been delivered to the company prior to its receivership, to be used for the construction of about 31 miles of line from Rocha to San Carlos. Additional equipment sufficient for about 40 miles of line, to be completed at a future date, was also acquired. The price agreed upon by the two parties was 1,000,000 pesos, payable in 5 per cent Government bonds. This acquired mileage, it is said, is to be used by the Government as a nucleus of an



FIG. 22.—AMERICAN LOCOMOTIVES BEING ERECTED AT DURAZNO, URUGUAY.



FIG. 23.—LIEBIG BEEF-EXTRACT PLANT, FRAY BENTOS, URUGUAY.

extensive State-owned railway system. It is stated that the Uruguayan Congress is expected to provide for the immediate construction of the Rocha-San Carlos line.

PUBLIC UTILITIES.

Public-utility development in Uruguay has largely centered in the city of Montevideo, although most of the larger cities and towns throughout the Republic are provided with electric lighting and power systems and with water supply. The electric exploitation has been monopolized by the Government, which operates the lighting system in the capital. In that city there are more than 22,000 subscribers, using upward of 300,000 lights. Profits from lighting in 1912 amounted to 725,500 pesos and in 1913 to 934,795 pesos, from which latter sum sinking-fund payments were made that reduced final profits to 851,453 pesos.

A modern water and sewerage system is being installed for the Government in the city of Mercedes, on the Rio Negro, the principal city in the Province of Mercedes. Similar undertakings are being carried out in the cities of Paysandu and Salto, on the Uruguay River. The contracts for these three enterprises have been undertaken by an American firm of contractors, this concern superseding a French firm whose contract had to be canceled as a result of the war. The cost of these public works totals \$5,000,000. The work is expected to be completed by the end of 1918. It is stated that the contractors have petitioned the Government for a concession for the working of the drainage systems in the above-mentioned cities for the period of 15 years.

A waterworks system is also being established in the town of Juan L. Lacaze.

MONTEVIDEO WATERWORKS CO.

The water system in the city of Montevideo is operated by a British company, the Montevideo Waterworks Co. (Ltd.), registered in 1878 and long successful. The approximate rate charged by this company is 20 cents per kiloliter (264 gallons) for ordinary consumption and from 12 cents to 18 cents for manufacturing and industrial establishments. The water system dates from 1871, and the supply is taken from the Santa Lucia River. The company serves nearly 35,000 houses, the daily consumption averaging 120 quarts per capita. During the year 1913 the daily consumption of water averaged 4,093,858 gallons. To take care of this service the company has six settling reservoirs with a total capacity of about 27,000,000 gallons; nine sand filters of 1,200 square meters each, through which 10,300,000 gallons of water can pass every 24 hours; two reservoirs for filtered water with a capacity of 4,740,000 gallons; and five distributing reservoirs with a total capacity of approximately 16,000,000 gallons. The total extent of water mains is about 340 miles. Work was begun three or four years ago on two mechanical filters that will be able to purify 2,400,000 gallons in 24 hours and two distributing reservoirs with a capacity of 5,285,000 gallons.

The company receives a subvention of £1,275 from the Government each year. Its capitalization is as follows:

Securities.	Amount out- standing.	High price since 1911.	Price January, 1918.
Ordinary stock (par £20).....	£850,000	£33	£23
5 per cent first debenture stock (par £100).....	200,000	110	83
5 per cent second debenture stock (par £100).....	150,000	107	81
5 per cent consolidated debenture stock (par £100).....	150,000	98½	80
Total.....	1,350,000		

Dividend payments on the stock have for a number of years been at the rate of 8 per cent per annum. This stock was issued at the following times and in the amounts stated: Original capital, £400,000; issued in 1905, £100,000; 1907, £250,000; 1911, £100,000; total, £850,000. The 5 per cent first debenture stock was issued in 1883 and is a floating charge on the property and undertaking; interest is payable June 30 and December 31. These debentures are irredeemable. The 5 per cent second debenture stock is also irredeemable. It was issued in 1889 and is subject to the first debenture stock; interest June 30 and December 31. The 5 per cent consolidated debenture stock was issued to provide funds for the filtering and distributing reservoirs previously described. They are subject in lien to the first and second debenture stock, but are redeemable at 105 per cent at any time after June 30, 1919. Interest is payable in January and July.

MONTEVIDEO GAS CO.

The gas supply of the city of Montevideo is furnished by the Montevideo Gas Co., a British corporation. The company was founded in 1872, and its original concession expired in 1887. In 1889 its by-laws were changed so as to enable it to engage in other lines of business. In addition to its gas privileges, the Maua dry dock is owned and a general engineering and ship-repairing business is handled. Previous to the nationalizing of the electric-lighting system the gas company furnished the city with a part of its public lighting.

The capitalization of the Montevideo Gas Co. consists of £541,920 shares, of a par value of £20, and £28,680 5 per cent first-charge perpetual debenture stock. The shares are quoted (January, 1918) at approximately £8, as compared with £13 10s., the high price since January, 1911. The debenture stock is privately held and not quoted. The report of the company for the calendar year 1916 indicated a net profit of £26,672, and after the payment of interest on the debenture stock and other charges and the inclusion of £13,261 brought forward from 1915, the profit remaining was £30,951. A dividend of 3 per cent for the year was paid on the stock and £14,964 carried forward. Reserve, contingencies, and insurance funds stood as of December 31, 1916, at £32,000, £17,739, and £12,500, respectively. The dividend for 1916 was 3 per cent, as compared with 3 per cent in 1915, 3 per cent in 1914, 4 per cent per annum in 1913 and 1912, and 3½ per cent in 1911, 1910, and 1909.

STREET RAILWAY COMPANIES IN MONTEVIDEO.

Montevideo is served by an extensive street railway system operated by two companies, the United Electric Tramways of Montevideo and the Compañía Transatlántica de Tranvías Eléctricos, the former British and the latter a German company controlled by the Compañía Alemana Transatlántica de Electricidad of Buenos Aires. In the five years 1904 to 1908, inclusive, the street railways of Montevideo carried, on an average, 33,516,690 passengers each year; between 1909 and 1913 the average was 71,458,542 passengers.

The United Electric Tramways of Montevideo owns all of the securities of the Sociedad Comercial de Montevideo, which owns and operates approximately 90 miles of electric railway, its concession expiring in 1978, on which date the municipality may take over the property provided it pays a fair valuation for the power houses, machinery, stations, workshops, etc., or may extend the franchise for 15 years additional, at the end of which period it may acquire the entire undertaking without cost.

The capitalization of the United company consists of £500,000 ordinary and £500,000 cumulative 6 per cent preference shares, the par value of both issues being £5. There is also outstanding approximately £970,000 5 per cent first debenture stock, part of an issue of £1,000,000, the remainder of which has been retired through the operation of the sinking fund. This sinking fund will retire the entire issue by 1978. Quotations on these securities have been as follows:

Securities.	High price since 1911.	Price January, 1918.
Ordinary stock (par £5).....	6½	2½
6 per cent cumulative preference stock (par £5).....	5.75	3
5 per cent debenture stock (par £100).....	106	76

The regular dividend of 6 per cent per annum on the preference stock has been maintained for years. Dividends on the ordinary stock in recent years have been at the following rates: 1909, 6 per cent; 1910 to 1913-14, inclusive, 7 per cent per annum; 1914-15, 4 per cent; none since. The gross traffic receipts for the year 1916-17 (year ended Mar. 31) amounted to £330,601, an increase of £17,172, as compared with the year previous. Operating expenses consumed 68.69 per cent of the gross as compared with 63.64 per cent the year previous and 60.86 per cent in 1914-15. Net receipts for 1916-17 totaled £108,898, as compared with £120,220 in 1915-16 and £141,477 in 1914-15. The increase in operating expenses has been due largely to the increased price of coal, the cost to the company in 1917 being approximately 150s. per ton, against 38s. to 52s. per ton the year before. Higher wages and increased freight charges on imported materials also contributed to the decrease in net profits. The company, after making ample appropriations to the various reserves and sinking-fund accounts, carried forward £12,814, as compared with £13,103 brought forward from 1915-16. The company had in service

at a recent date 240 cars and 73 trailers. The company's securities are good semispeculative investments.

The Compañía Transatlántica de Tranvías Eléctricos de Montevideo is, as stated, controlled by the Compañía Alemana Transatlántica de Electricidad of Buenos Aires (see Argentina, p. 68). The latter company, which is controlled in Germany, owns the 1,688,500 pesos stock of the Montevideo enterprise. The mileage operated is about 85, and the equipment in service consists of 234 cars and 38 trailers. A number of cars on this and the British line are of American manufacture. Information concerning the earnings of the German company is not available. Its business, although a number of important thoroughfares are traversed, is not as large as that enjoyed by the United company. The entire line is operated by electricity.

In addition to the two electrically operated tramway lines there is a third street railway system—that operated by the Tranvía del Norte (Tramway of the North). About 11 miles of horse-car lines are operated by this company. Passengers carried in the normal year 1913 totaled 3,359,344, and gross receipts amounted to 140,659 pesos. It is expected that when normal prosperity returns this system will be electrified. Its location is good and a large additional amount of traffic would probably be enjoyed.

MONTEVIDEO TELEPHONE CO.

Another important British-owned public utility is the Montevideo Telephone Co., one of the two companies serving the capital city and its suburbs. These two companies have considerably more than 10,000 subscribers. The British company's concession allows it to lay wires anywhere within the limits of the Republic. The capitalization of the company, which has its head office in London, consists of the following securities, both classes of which are listed on the London Stock Exchange:

Securities.	Amount.	High price since 1911.	Price January, 1918.
Ordinary stock (par £1).....	£76,280	£1 ³ / ₈	s. d. 21 3
5 per cent cumulative preference stock (par £1).....	86,492	1	16 0

For the year ended July 31, 1915, the company earned a net profit of £26,737, including £5,303 brought forward from the previous year, and after paying 5 per cent on the preference shares and 6 per cent on the ordinary shares was able to carry forward to 1916 £5,394. The 6 per cent dividend rate on the ordinary stock has been maintained for a number of years. The growth of the company has been consistent, however, the profits for 1915, as shown above, having increased from £13,000 10 years previous. The company has been in existence since 1888.

About two years ago a bill was introduced in the Uruguayan Congress whereby the telephone service would become a Government monopoly, the Government to establish a system of underground cables.

In the interior of Uruguay telephone systems for the police and private individuals and concerns are operated with the temporary permission of the Government.

TELEGRAPH LINES.

The local telegraph system is under national control. The various railways also maintain private lines, and several of the international companies, including the Western Telegraph Co., the River Plate Telegraph Co., etc., maintain cable service. The national lines are 2,664 miles in length and during the year 1913 handled 930,169 telegrams, employing 210 persons and operating 85 offices. The expenses of the Government system amount to 237,336 pesos, and sufficient business is handled to maintain the service without loss.

MINERALS AND MINING DEVELOPMENT.

Persons seldom speak of Uruguay as a mineral country, yet the Republic may be said to contain considerable wealth in gold, silver, copper, lead, coal, marble, gypsum, talc, agate, granite, jaspers, topaz, slate, etc. Very little development work has been carried out, except in gold mines, a number of which have been exploited and worked in a small way, without, however, any great amount of success. The only minerals being exported to-day are stone and sand, 1,234,411 tons of the latter being shipped abroad in 1914 and 864,660 tons in 1916. The value of the exports of stone, sand, and minerals in 1914, 1915, and 1916 was 2,525,573 pesos, 1,006,124 pesos, and 488,497 pesos, respectively. Gold bars to the value of 4,000 pesos and 2,030 pesos were also exported in 1915 and 1916. There are several British companies in the field, among them the Uruguay Consolidated Gold Mines (Ltd.), the Uruguay Goldfields (Ltd.), the Hampton Uruguay (Ltd.)—the latter also owning properties in Western Australia. The Hampton Uruguay (Ltd.) formerly owned 60,000 shares of the stock of the Uruguay Consolidated Gold Mines (mentioned above), but the affairs of the latter company have been wound up and the loss to the Hampton Uruguay Co. written off. In 1914 receivers were appointed for the Hampton Uruguay Co., there being a considerable debit balance to profit and loss.

The principal gold areas of the Republic are found at or near Cunapiru, Department of Rivera, not far from the Brazilian frontier. In the Department of Rivera approximately 400 gold mines have been "denounced." There is gold also in the Departments of Minas, Salto, and Tacuarembó. It is expected that, when fairly developed by companies provided with sufficient capital, the gold-mining industry will in time prove profitable.

Copper is found in good quantities in the Departments of Cerro Largo, Maldonado, Minas, Paysandu, and Salto. As is the case with the gold deposits, no development work has been attempted by interests provided with sufficient capital. Silver has been located in various places, and the same is true of iron. Coal of a fair quality has been located in the Departments of Cerro Largo, Montevideo, and Santa Lucia. The deposit found in Cerro Largo gives promise, but the production stage has not yet been reached. Manganese has been located in the Department of Rivera, and a company has been

formed in Great Britain to develop it. Paving stones, sand, and similar products have been exported in fair quantities. Amethysts and other precious and semiprecious stones have been exported in small quantities in the past. Several diamond mines have also been registered.

The Government of Uruguay is doing what it can to aid in the development of the mineral resources of the Republic, having established a department of geology to study, among various subjects, the mineral fields. Furthermore, the Government has granted an exemption from duties on all machinery and materials necessary for the mining industry.

Petroleum has been found in Uruguay, although insufficient development work has been carried on thus far to enable any opinion to be stated as to the future of the industry. The discoveries so far made have been in the neighborhood of the city of Melo, capital of the Department of Cerro Largo. The depth at which this deposit was located is about 1,100 feet.

FOREST PRODUCTS.

As previously stated, about 1,065,557 acres of land were under forests in 1908. Little has been done in the way of wholesale timber cutting; in fact, the Government is endeavoring to increase the acreage of trees rather than to encourage the destruction of them for commercial purposes. Millions of trees of various descriptions have been planted on land not useful for other purposes, with the result that in the not distant future the Republic will doubtless greatly increase its sources of supply. The quantity of timber or other forest products exported by Uruguay may be regarded as negligible.

LIVE STOCK AND MEAT INDUSTRY.

Uruguay, primarily a pastoral country, has assumed a high standing among the nations in the sheep and cattle industries. The live stock industry dates from the year 1603, when 100 cattle and two herds of horses were brought into the country. Owing to the rich pasturage the animals multiplied rapidly and soon became very numerous. During the early days these animals were killed solely for their hides, since meat for export purposes was valueless.

In 1754 the first meat-salting plant was established in the country, its operations being of a very restricted character, however. In 1786 a fairly large establishment for the preparation of jerked beef was founded, and this was the real pioneer of the industry. Within the next quarter of a century several additional meat-salting plants were established in Uruguay and the industry was commencing to be a factor in the development of the trade of the then thinly settled land. In about the year 1860 the importation of Durham bulls and fine stock cattle began and this gradually led to a greatly improved breed of animals throughout the country.

The first sheep in Uruguay were imported from Argentina in 1608. For 150 years the industry languished, and it was not until the close of the eighteenth century that any attention was paid to the improvement of breeds. Since that time the industry has grad-

ually assumed considerable importance, and the number of sheep has increased to about 28,000,000.

The following table will indicate the growth of the live stock industry in Uruguay:

Live stock.	1860	1900	1908	1917
Cattle.....	3,632,203	6,827,428	8,192,608	7,942,212
Sheep.....	1,989,929	18,608,717	26,286,296	28,000,000
Horses.....	518,218	561,408	556,307	
Mules.....	8,301	22,992	17,671	
Hogs.....	5,831	93,929	180,099	500,000
Goats.....	5,437	20,426	19,951	

Uruguay possessed, in 1916, 13 meat-salting plants, 7 factories for preserving meat, and 2 freezing plants. In the year 1913 the freezing plants slaughtered 132,650 cattle and 311,111 sheep.

Among the great concerns engaged in the meat and meat-products trade in Uruguay is the Liebig Extract of Beef Co. (see also Argentina), owning an extensive establishment at Fray Bentos, on the bank of the Uruguay River. This company was incorporated in 1865, and its Uruguayan venture followed the successful trial by George Giebert, a German, of a system for the extraction of beef invented by Prof. Justus von Liebig, of Munich, Germany. The head office of the company has always been in London, and its original capitalization was £500,000 ordinary shares, which was issued as part paid and was not finally paid up until 1895. The present capitalization of the company consists of £600,000 ordinary shares, with a par value of £5; also £1,000,000 preference shares and £400,000 notes. Dividend payments on the ordinary shares are generally at the rate of 20 per cent per annum and upward, the 1916 dividend payment being 25 per cent.

The Compañía Swift de Montevideo and the Frigorífica Uruguaya de Montevideo are also important factors in the meat trade. The Compañía Swift de Montevideo (controlled by Swift & Co., of Chicago) exported to Great Britain and the Continent in 1915 726,214 frozen quarters of beef, 169,551 chilled quarters of beef, 83,750 wethers, and 7,525 lambs; in 1916 it exported 717,020 frozen quarters of beef, 99,174 chilled quarters of beef, 96,027 wethers, and 5,295 lambs. The Frigorífica Uruguaya de Montevideo shipped in 1916, 3,985,634 kilos (8,786,851 pounds) of cattle products to England and 15,832,128 kilos (34,903,828 pounds) to the Continent; also 1,015,633 kilos (2,239,065 pounds) of mutton and 942,279 kilos (2,077,369 pounds) of offals to England and 252,103 kilos (555,792 pounds) of offals to the Continent. At last accounts the shares of this latter company were entirely held by the Compañía Sansinena de Carnes Congeladas, of Buenos Aires. The Compañía Uruguaya-Braziliera Rio Blanco, registered in Montevideo in 1913 and capitalized at 1,500,000 pesos, has its head office in Montevideo, although its properties are largely located in Brazil.

Two important estancias controlled by European capitalists are those operated by the Pranges Estancia Co. and the River Plate Land & Farming Co. Both companies were incorporated in Great Britain, the former in 1867 and the latter in 1863. The Pranges estate

consists of 59,322 acres at Nueva Alemania, on which are stocked normally about 15,000 cattle, 20,000 sheep, and a number of horses. The capitalization of the company is £120,000, all in ordinary shares, these shares being quoted on the stock exchange at Liverpool, England. Dividends usually average from 16 to 25 per cent per annum.

The River Plate Land & Farming Co. owns a sheep and cattle estancia at Merinos, on the Midland Uruguay Railway, consisting of 39,653 acres, on which are stocked usually about 15,000 sheep, 8,000 cattle, and 350 horses. The capitalization of the company is £40,000. Dividend payments vary between 14 per cent and 20 per cent per annum, and there is a reserve fund of £15,000. The head office of the company is at Liverpool, England, and the ownership is similar to that of the Pranges Estancia Co. (Ltd.).

Nearly all the exports of Uruguay consist of live stock, meat, hides, and other products of animals. The exports of live stock are not very large, consisting in 1916 of 23,682 cattle, 15,590 sheep, 4,536 horses, and 1,142 other animals. The total exports of animal products during 1916 were valued at \$73,367,695 United States currency, as compared with \$72,933,747 in 1915 and \$56,587,379 in 1914.

According to the live-stock and agricultural census in 1908, there were 43,061 farms and ranches in Uruguay, covering 42,302,021 acres, of which 39,249,780 acres were used for pastoral purposes, 1,986,684 acres were under cultivation, and 1,065,557 acres were covered with forests. A total of 109,449 persons were engaged in the agricultural and live-stock industries. The war in Europe has caused the industry to assume great importance, and despite strikes and labor troubles of various kinds it is bringing considerable prosperity to the inhabitants of the Republic. Record prices are being realized for beef, mutton, hides, and wool, and this has brought about a marked rise in land values.

AGRICULTURE.

As stated in the preceding paragraph, 1,986,684 acres of land were under cultivation according to the agricultural and live-stock census of 1908. This area is probably slightly less than the area under cultivation at the present time, but the increase has not been sufficient to alter the fact that the Republic is primarily a pastoral land. The lack of uniformity in the geological formation of the country is the chief cause for the variations in the soils so noticeable in Uruguay. A great section of the Republic is fertile, being covered throughout the year with long, rich grass, used principally for cattle pasture. There being no deserts or mountains and only small timber areas, the farm lands may be readily cleared for planting at a very small expense. As rainfall is generally abundant and the climate delightful, the country is an almost ideal location for the carrying on of agricultural and pastoral pursuits. The agricultural products are insufficient for the needs of the people; and the Government, being thoroughly alive to the situation, is doing everything in its power to assist the farmers by teaching improved methods, providing seeds on easy terms, and rendering financial aid to those not provided with capital.

The area under various crops in a recent year consisted of 911,435 acres sown to wheat, 692,475 to corn, 128,227 to flax, 97,443 to oats,

14,048 to barley, 5,958 to canary seed, and 452 to rye. The total yield in quintals (one quintal=101.28 pounds) amounted to the following: Wheat, 1,602,277; oats, 25,309; corn, 1,814,229; barley, 35,846; flax, 26,141; canary seed, 12,839; rye, 1,170.

Among other agricultural crops of Uruguay are tobacco (which gives promise of a future), linseed, alfalfa, sugar cane, potatoes, etc. The number of tobacco farms in the country is stated to be 745. The total exports of agricultural products in 1916 were valued at \$1,502,109 United States currency, as compared with \$778,774 in 1915 and \$1,450,125 in 1914.

In addition to the various farms in Uruguay, there were, during the year 1913, 2,266 vineyards, raising a good quality of grapes (much in demand in the home markets), and 112 wine depots.

MANUFACTURING AND INDUSTRIAL ENTERPRISES.

One need hardly say that Uruguay is not an important manufacturing country. Most of the industries of this kind are confined to the meat factories, freezing establishments, and other makers of meat products, of whom mention has previously been made, and to factories handling the products of the farm. Among the industrial concerns in the Republic there may be mentioned 115 flour and macaroni mills and factories, 45 other mills, 1 sugar factory, 350 dairies and creameries, 4 breweries, 3 starch factories, as well as candy, soap, furniture, cement, hardware, shoe, leather-goods, brick, glass, and other factories. Some of these factories have up-to-date machinery, while others are operated in a primitive fashion. Most of the industries are located in Montevideo, the census of 1908 indicating that about 4,600 out of a total of 5,357 establishments were located in the capital city. The general manufacturing industry has suffered since the outbreak of the war, particularly during 1917 and 1918, on account of the high cost of coal, the difficulties of obtaining raw materials, and the shortage of labor.

Probably the two most important of the local breweries are the Cervecería Uruguay and the Cervecería Montevideana. The shares of these companies, as well as of several other industrial concerns, are listed on the Montevideo Stock Exchange, although not generally actively quoted. A company with a capitalization of 600,000 pesos was formed during 1912 to manufacture cement, a product much in demand throughout the Republic during normal years. At the outbreak of the war this concern was producing 150,000 barrels a year, as compared with about one-half that amount imported. The plant covered several acres and employed upward of 200 workers.

VENEZUELA.

INTRODUCTION.

The Republic of Venezuela lies wholly within the Tropics. The area is officially stated to be 394,000 square miles. The total population according to the official census in 1891 was 2,664,241. The present estimated population is 2,850,000. Geographically the country is divided into four sections—(1) the Guiana highlands, covering the territory south and east of the Orinoco River; (2) the great central plains, commonly known as the Llanos; (3) the northeastern chain of the great Andean Cordillera, this section forming the northwestern portion of the Republic and bounding the Llanos on the south and east; (4) the lower country bordering on Lake Maracaibo.

The section comprising the Guiana highlands—a great plateau and mountain region, partly unexplored—contains vast forest areas, in which are found vanilla, rubber, tonka beans, and a vast variety of tropical forest products. This great section of the Republic (area 200,000 square miles) is watered by the upper Orinoco, the Cauri, the Coroni, and other tributaries. The highest point in this geographical division is at Mount Roraima, where the Republic joins Brazil and British Guiana; here the altitude reaches 8,500 feet. The population of this district is composed almost wholly of wild Indian tribes.

The great Llanos of the Orinoco cover about 108,000 square miles. The population, other than the Indian tribes, is extremely sparse, vast areas of what is believed to be very valuable territory remaining practically unexplored. This country is mostly a wide grassy pampa or plain, sometimes stretching as far as the eye can reach without a break in the landscape. There are numerous tiny groups of trees, as well as several forests that cover considerable areas. Great sections of the Llanos are subject to periodical floods in the rainy season and droughts in the dry season. These Llanos contain fairly large numbers of cattle, but are capable of sustaining many millions more.

The northwestern, or Andean, section covers about 42,000 square miles. In this territory are located many high mountain peaks, including Mount La Columna, 16,523 feet, and six other peaks with altitudes exceeding 13,700 feet. There are numerous fertile valleys in this district and a number of the important centers of population.

The fourth section includes the region about Lake Maracaibo, the small tracts of coastal lowlands, and the islands tributary to Venezuela. The area of this geographical district is 28,000 square miles.

Caracas, the capital, has a population, including suburbs, of about 100,000. The city is pleasantly located at an altitude of about 3,000 feet on the north bank of the Guaire River. It is about 8 miles from La Guaira as the crow flies, but about 23 miles by rail, owing to the difficult grades encountered. The city is well laid out and there is an

excellent water supply, as well as telephones, electric lights, tramways, and other facilities. The city is the terminus for three steam railways, one to La Guaira, the port, one to Valencia, and the third to inland points.

Valencia lies at an altitude of 1,577 feet, with a population at the census of 1891 of 54,387 and at the present time of possibly 60,000. This city also is provided with telephones, electric lights, and tramways and is the terminus for the Great Railway of Venezuela, running to Caracas, and of the Puerto Cabello & Valencia Railway, running to Puerto Cabello.

Maracaibo, with a population probably in excess of 50,000, is the third city of the Republic. It is probably the hottest city in Venezuela and not the most healthful. There is a well-equipped electric lighting plant in the city, as well as two tramway lines. Foreigners are generally astonished at the busy aspect of the place. It is the center of a very large foreign trade, including the exportation of great quantities of coffee. In addition to this commerce with nations abroad, a considerable business is enjoyed with points along Lake Maracaibo and in the interior.

Barquisimeto, at the head of the Bolivar Railway, has a population of 35,000, and Ciudad Bolivar (Angostura), the principal port on the Orinoco River, has about 22,000. Barcelona, Victoria, San Cristobal, Villa de Cura, Merida, Puerto Cabello, Maturin, and Bocono are also important cities with populations of 13,000 to 20,000. La Guaira, the port for Caracas, has a population of about 10,000.

The United States enjoys the benefit of a very large proportion of the Venezuelan trade, which under normal conditions is rather large. The foreign commerce covering a period of six calendar years has been as follows:

	1911	1912	1913	1914	1915	1916
Imports.....	\$18,394,851	\$20,568,940	\$18,223,103	\$13,987,457	\$13,470,237	\$20,634,419
Exports.....	22,676,975	25,260,908	29,483,789	21,518,592	23,404,427	22,707,001
Total.....	41,071,826	45,829,848	47,706,892	35,506,049	36,874,664	43,341,420

Of the exports for 1916, coffee amounted to \$10,552,543 and cacao to \$4,254,394. Hides and skins, gold, sugar, balata, copper ore, live stock, frozen meats, asphalt, sole leather, pearls, and rubber comprised the bulk of the other commodities sent abroad. Dyewoods and timber are also shipped in fair amounts during normal years.

GOVERNMENT FINANCES.

So far as the interests of present-day investors are concerned, the financial history of Venezuela began in 1905, in which year the consolidated debt of 1880-81 and the 5 per cent 50,000,000 boliviano German loan of 1896 were exchanged for 3 per cent bonds of an issue known as the Diplomatic Debt of 1905, on the basis of 72½ per cent and 100 per cent, respectively. The interest that was overdue on the old loans was funded into new bonds at par.

In 1906 the 6 per cent internal bonds of the Republic, which were mostly held in Europe, were converted into 3 per cent bonds at par.

These new bonds carried a sinking fund of 1 per cent per annum. Interest overdue on the old bonds was paid off to the extent of 50 per cent in non-interest-bearing bonds convertible into 3 per cent bonds according as the amortization of the latter issue took place.

Between the years 1906 and 1917 there has been a steady, consistent decrease in the outstanding external and internal loans. In 1906 the internal debt was £3,043,690; in 1908, £2,634,185; in 1910, £2,518,465; and in 1915, £2,401,261. The external debt, which amounted to £6,360,657 in 1906, was reduced to £5,836,659 in 1908, to £5,196,025 prior to December 31, 1910, and to £4,395,744 in 1915. During the period from August, 1905, to June, 1914, £1,219,100 bonds of the consolidated diplomatic debt were redeemed at a cost of £654,332, an average of £53,675 per £100 bond. Since the outbreak of the war certain difficulties have been encountered in the paying of interest and amortization of the debt. This was no fault of Venezuela, however, that Republic having been absolutely prompt in making all payments for the service of that loan and other loans. Owing to the fact that the Disconto-Gesellschaft, of Germany, acts for the European bondholders, other than the British bondholders, and that coupons were payable both in England and Germany, numerous complications arose. A similar condition existed in the operations of the amortization fund. So far as the British and neutral holders of the bonds are concerned, matters have been satisfactorily adjusted.

The high price for the 3 per cent diplomatic bonds since January 1, 1911, has been 61½ and the low price 45. The approximate price in January, 1918, was 57.

A recent statement of the Secretary of the Treasury of Venezuela indicated that the public debt of the nation amounted to the following:

Internal debt:	Bolivares.
National internal consolidated 6 per cent bonds-----	40, 700
National internal 3 per cent consolidated bonds-----	59, 068, 721
1 per cent bonds-----	38, 166
National internal consolidated debt (no interest)-----	1, 135, 645
Treasury bonds to bearer-----	349, 102
Total internal debt-----	60, 632, 334
External debt:	
National 3 per cent diplomatic debt-----	9, 723, 292
Diplomatic debt of 1905, 3 per cent-----	101, 267, 650
Other-----	1, 600
Total external debt-----	110, 992, 542
Total indebtedness of the Republic-----	171, 624, 876

The above total, equal to \$33,123,601 United States currency, is somewhat larger than the amount of the debt on June 30, 1917.

The municipalities of Venezuela have no bonds outstanding, and no obligations of the various States are held publicly.

BANKS.

There are at the present time three important local banks in Venezuela. Of these, the Bank of Venezuela would probably take first rank. This bank has a capital of 12,000,000 bolivares. Its head-

quarters are at Caracas, and it maintains agencies at La Guaira, Puerto Cabello, Valencia, Maracaibo, Barcelona, and nine other cities and towns. It acts officially for the Government except in Caracas. The bank was founded March 24, 1882, as the Banco Comercial, its title being changed to the present one in the year 1890. Its 600 shares, which have a par value of 20,000 bolivares, are held by nearly 300 stockholders. Dividend payments during recent years have been quite substantial. Reserves are large, and the issue of bank notes has never exceeded 2,000,000 bolivares.

The Bank of Caracas is capitalized at 6,000,000 bolivares. Its headquarters are in Caracas, and a number of branches are maintained. The 600 shares (par 10,000 bolivares) are held by nearly 150 persons. The bank was incorporated in 1890, operating under a 40-year charter. It has paid fair dividends for a number of years.

The Bank of Maracaibo is more or less of a local institution, its operations being confined to Maracaibo and the western part of the Republic. Its charter dates from May 11, 1882, and its capitalization is 1,250,000 bolivares. The 3,750 shares (par value 300 bolivares) are distributed among nearly 175 holders.

As Consul Frank Anderson Henry states in a report dated March 11, 1918, banking facilities have been greatly improved in Venezuela within the last two years, during which period several foreign banks have entered the field. As is to be expected, the principal banks have their headquarters at Caracas, which is the commercial and financial center of the country as well as its capital.

The Royal Bank of Canada was the first foreign institution devoted strictly to banking to establish itself in Venezuela. It opened in Caracas in October, 1916, and has since established branches in Maracaibo, Ciudad Bolivar, and Puerto Cabello. This last-mentioned branch was opened in May, 1917, and is the only banking institution in that port that can supply the needs of commerce, as the agency of the Bank of Venezuela there can transact only a very limited class of business.

During the year 1917, the Mercantile Bank of the Americas, through a subsidiary, and the National City Bank have opened in Caracas. The former has established a branch in Maracaibo. Both banks will no doubt extend their activities to other parts of the country in the future.

Under Venezuelan law, Consul Henry says, any foreign bank properly chartered under the laws of its own country can come to Venezuela and do business. Before doing so, however, a certificate as to its charter must be produced and a copy of the bank act of the chartering country. These must be duly registered in accordance with local law. To become banks of issue banks must submit to a greater degree of Government control and supervision. None of the foreign banks are at present authorized to issue notes. The particular operations of banks are governed by a special statute and business operations in general by the code of commerce.

The foreign banks do a general banking business, consisting largely of commercial loans, usually made by overdrafts, exchange transactions, etc. Most of them do not, as a rule, make advances on products of the country, though this is done by the Venezuelan banks, and there is undoubtedly a considerable volume of this kind of business

available. Interest rates, all things considered, are not high for a country where capital is so much needed, the usual rates being from 8 to 10 per cent per annum for commercial loans. Bank deposits are small and banks have in the past found themselves continually in the need of importing gold, inability to do which recently has completely upset the exchange market.

As the handling of drafts forms such an important part of Venezuelan banking business, the following points may be of interest in regard to them. Drafts of all kinds must bear stamps according to their value, as shown below :

Value of draft.	Stamp required.	Value of draft.	Stamp required.
	<i>Bolivar.</i>		<i>Bolivar.</i>
25 to 50 bolivares.....	0.05	301 to 400 bolivares.....	0.40
51 to 100 bolivares.....	.10	401 to 500 bolivares.....	.50
101 to 200 bolivares.....	.20	501 to 1,000 bolivares.....	1.00
201 to 300 bolivares.....	.30		

For sums larger than those shown above the tax is 1 bolivar (\$0.193) for each 1,000 bolivares or fraction.

Consul Henry says that in case of drafts from the exterior sent for collection, according to local custom the drawee does not pay collection charges or stamps. The purchaser of a draft in Venezuela pays for the stamps, though formerly certain banks used to assume this charge.

Banks do not accept consignments on account of customs laws, and for the same reason "to order" shipments are prohibited.

As has been frequently pointed out, sending drafts to banks with documents attached affords the foreign seller no protection, as the consignee named in the invoice can for a small fee obtain copies of the necessary documents from the customhouse.

Commercial information can usually be obtained from the banks, but there are no agencies devoting themselves exclusively to this business and care should be exercised by foreign houses in doing business with small and little-known merchants.

RAILWAY DEVELOPMENT.

Railway development in Venezuela has been slow in the extreme. There are no important lines in the Republic, the maximum length attained by any line being 111 miles. To give a description of the various railways in operation the report of United States Consul Homer Brett on "Railway Construction and Revenues in Venezuela" is quoted in its entirety, this most excellent report covering the subject thoroughly:¹

With 530 miles of steam lines in operation, Venezuela has 7 feet of railway for each square mile of territory, and 11.8 inches per head of population. The average freight rate is 30.5 cents per ton-mile; the average passenger rate 6.57 cents per mile for first class and 4.6 cents for second class. All lines are narrow gauge, the various widths being 3 feet 6 inches, 1 meter (39.37 inches), 3 feet, and

¹ Consul Brett's report extends as far as the heading "Securities and Quotations of British-Controlled Lines," on page 382.

2 feet. As a rule there is no interchange of cars between the various roads. Freight rates are based upon weights without regard to the class or value of the merchandise, and no reductions are made for carload or other quantity shipments. Upon the more important lines the equipment is of European origin and type. With two exceptions all the roads are short lines from a port to a city or a populated district on the highlands not far from tidewater.

Practically all the existing railways were built between 1881 and 1893 under Government subsidies and guaranties of interest upon the capital invested. This policy was greatly modified in 1892 and 1897, and as a result not a single mile of railroad was constructed. In 1912 the present law was passed, and in 1914 some extensions of existing lines were begun.

In 1895 the Government raised a loan of 50,000,000 bolivares (\$9,650,000), with which three of the least profitable roads were taken over, the accrued debt upon the guaranties paid, and the guaranteeing clauses canceled in all contracts except that of the Puerto Cabello-Valencia Railway. In 1916 this company accepted £190,000 sterling (\$924,635) in payment of all accrued indebtedness and for the cancellation of the interest guaranty for the future.

On several of the main roads traffic is lighter now than 25 years ago, and notwithstanding the fact that rail transportation is as costly as that by pack mule, scarcely any of the railway enterprises have earned a fair return upon the capital invested, though certainly transportation has been quickened and rates have been steadied if not cheapened. It is probable that in several cases capital investments have been smaller and earnings greater than the statistics indicate.

The reasons for the conditions shown lie in the sparseness of the population, and its distribution in a long narrow strip of territory skirting the seaboard, which leads to the building of unconnected lines with short hauls; in the moderate producing and consuming power of the people; and in the general refusal of the lines to grant low rates for commodities of small value.

In 1915 the total cargo movement over all railways amounted to 280,621 tons, which, on a basis of 300 working days per year, gives a daily movement of only $1\frac{1}{2}$ tons per mile of line.

BOLIVAR RAILWAY.

The Bolivar Railway (British capital) was the first road undertaken in Venezuela. Its object was to provide an outlet for ore from the copper mines in the State of Yaracuy. Construction was begun successively in 1835, in 1862, and for the third time in 1872. The main line was completed in 1877. It runs from the port of Tucacas (northwest of Puerto Cabello) to Aroa and Barquisimeto, and has a branch (opened to public service in July, 1916) from Palma Sola to San Felipe, the capital of the State of Yaracuy. The contract length is 218.5 kilometers (136 miles). The gauge is 2 feet, and the rail runs 48 pounds to the yard. The capital stock amounts to \$6,822,550 United States currency. The maximum grade is 5.27 per cent, the minimum radius of curves 46.83 meters, ties are of wood and of steel, and there are 518 bridges having a combined length of 2,119 meters.

The road has 13 locomotives with a total weight of 294 tons, 9 passenger coaches, 69 flat cars, 61 box cars, and 125 stock cars. The

passenger tariff is 5.8 cents per mile for first class and 3.8 cents for second. The freight rate equals 29 cents per ton-mile. From 1895 to 1902 the road's gross income decreased steadily until the latter year it was only \$91,711, after which it rose to \$506,590 in 1913.¹ This road has made efforts to encourage agriculture along its line. The general manager is Mr. C. A. Hutchings; address, the Bolivar Railway, Aroa, via Tucacas, Venezuela.

LA GUAIRA-CARACAS RAILWAY.

The La Guaira-Caracas Railway (British capital) was opened to service in 1883. It is 22 miles long, running from the port of La Guaira to the city of Caracas and climbing from sea level to a height of more than 3,000 feet. Although in appearance a dangerous line, it is so well constructed and so carefully policed that there has never been an accident involving loss of life. The gauge is 3 feet, the rail weighs 65 pounds to the yard, and ties are of native hardwood. The maximum grade is $3\frac{1}{4}$ per cent; the minimum radius of curves 43 meters. There are 15 bridges with a combined length of 281.55 meters and 8 tunnels with a total length of 379.5 meters.

The rolling stock consists of 15 locomotives, with a total weight of 520 tons, 28 passenger coaches, 20 flat cars, 63 box cars, and 34 stock cars. The passenger tariff equals 10.94 cents per mile for first class and 6.68 cents for second. The freight rate is 26.38 cents per ton-mile for import (up-grade) freight and two-thirds of this amount for export or down-grade, the former greatly exceeding the latter in tonnage.

The capital investment is stated as \$3,508,740, and the capital stock of the company is \$1,705,637. In 1917 gross revenues totaled \$423,882 and operating expenses \$201,517. The total income, including \$6,857 brought forward from 1916, was \$254,644. The dividend for the year was 6 per cent, free of tax, and the amount carried forward to 1918 was \$15,651. The competition of pack animals, carts, and automobiles with the railway is keen, and will probably become keener unless the company reduces rates materially.

Although the tracks of the La Guaira Harbor Corporation are of the same gauge as the railway, the cars of the latter never go to ship side, and much cargo is unnecessarily handled twice. The gauge differs from that of the other railways centering in Caracas. This is the best piece of railway property in the country; with only one-twentieth of the total mileage, it transports nearly one-fourth of the freight handled by all lines. It is a steady dividend payer, and a generous portion of the earnings has been put back into the property. The general manager is Mr. James Flind; address, La Guaira-Caracas Railway, Caracas, Venezuela.

GREAT RAILWAY OF VENEZUELA.

The Great Railway of Venezuela (El Gran Ferrocarril de Venezuela, German capital) is the longest and most costly railway that has been constructed in Venezuela. It was opened to traffic in 1894, and cost \$15,135,492, or an average of \$85,226 for each of its 179 kilometers. This is a length of 111 miles. The road runs from Caracas westward to Valencia, the second city of the Republic, and its construction is much better than is justified either by the necessi-

¹ For the year ended June 30, 1918, gross receipts totaled \$660,112, as compared with \$595,533 in 1916-17.

ties or the possible traffic. It was built under a Government guaranty of interest upon the capital invested, which was later canceled in consideration of a cash payment. The gauge is $3\frac{1}{2}$ feet; the rail weighs 47 pounds to the yard; the maximum grade is 2.2 per cent; and the minimum radius of curves is 75 meters. There are 219 bridges and viaducts, having a combined length of 4,656.4 meters, and 86 tunnels, totaling 6,249 meters. The ties are of steel and of concrete, and the rolling stock consists of 18 locomotives, with a combined weight of 720 tons, 30 passenger coaches, 68 flat cars, 60 box cars, and 19 stock cars. The passenger tariff equals $6\frac{1}{2}$ cents per mile for second class and 7.78 cents for first class, and the freight rate is equivalent to 15.65 cents per ton-mile. The freight traffic is small, and nearly half the revenue is from passengers carried. The best year was 1913, when gross receipts were \$552,025 and a return of 1.6 per cent upon capital invested was earned. The management has attempted some development work in tree planting, the introduction of new crops, and the improvement of stock, but the grasshopper plague has affected the results. The company holds concessions for the construction of two branch lines southward into the llanos.

PUERTO CABELLO-VALENCIA RAILWAY.

The Puerto Cabello-Valencia Railway (British capital) is $33\frac{1}{2}$ miles long, and runs from the port of Puerto Cabello to the city of Valencia. It climbs over a pass 1,952 feet above sea level, and has at one point a rack-rail section 2.4 miles long with a maximum grade of 8 per cent, the steepest gradient on the smooth-rail sections being $3\frac{1}{2}$ per cent. The gauge is $3\frac{1}{2}$ feet; the minimum radius of curves $91\frac{1}{2}$ meters; there are 33 bridges with a combined length of 915.5 meters and one tunnel 76.25 meters long. The rail on the rack section runs 70 pounds and on the others 55 pounds to the yard. Rolling stock consists of 10 locomotives with a total weight of 398 tons, 13 passenger coaches, 26 flat cars, 43 box cars, and 28 stock cars. The passenger tariff equals $7\frac{1}{2}$ cents per mile first class, and 6 cents per mile second class. The freight rates are equivalent to 20 cents per ton-mile, though the road in the effort to increase the amount of down-grade or export tonnage has recently made reductions upon some articles. The capital investment is stated as \$3,898,600. In 1917 gross receipts were \$243,364 and operating expenses \$152,059. The surplus, including \$21,636 brought forward, was \$71,411. A dividend of $1\frac{1}{4}$ per cent (less tax) was paid, \$24,931 was placed to renewal and reserve accounts, and \$25,496 was carried forward to 1918. The road was built under a Government guaranty of 7 per cent upon the capital invested. This rate was never earned, and there were years of dispute as to the amounts actually invested and actually earned. Some payments on this account were made; the guaranty was reduced to 5 per cent, and in 1916 it was definitely canceled in consideration of a cash payment of £190,000. The general manager is Mr. W. A. Littell; address, Puerto Cabello-Valencia Railway, Valencia, Venezuela.

CENTRAL RAILWAY OF VENEZUELA.

The Central Railway of Venezuela (British capital) has 73.5 kilometers (46 miles) of completed line and 23.5 kilometers yet to be constructed to complete its contract. It runs from Caracas in a general southeasterly direction toward Ocumare on the Tuy River,

the town of Yare being the present terminus. The gauge is 3½ feet, the same as the Gran Ferrocarril, but wider than that of the La Guaira-Caracas railway. These are the roads centering in Caracas. The station is across the city from the others, and all transfer cargo has to be carted 2 miles. The capital stock of the company is 5,050,000 bolivares and the capital investment is 20,015,000 bolivares. The country traversed is classified as level 10 kilometers, broken 5 kilometers, rough 11, and mountainous 34. The average cost per kilometer is put at \$67,722. The line began operations in 1887 and the gross receipts that year were 86,501 bolivares; they were 295,487 bolivares in 1891, but only 73,114 bolivares in 1902. Since then they have increased steadily, and were 765,929 bolivares in 1915. The maximum grade is 4 per cent, the minimum radius of curves 50 meters. There are 75 bridges and viaducts with a combined length of 724 meters, and 14 tunnels. Ties are of wood and of steel, and on some stretches the rails have been placed upon limestone blocks, but this proved unsuccessful and has been given up. The company operates an electric service over its lines as far as Petare.

The road has 8 locomotives weighing 277 tons, 13 passenger cars, 23 flat cars, 14 box cars, and 4 stock cars. The passenger tariff is equal to 3 cents per mile, and the freight rate to 27 cents per ton-mile. Since 1906 the business of this road has increased rapidly. The general manager is Mr. Albert Cherry; address, Central Railway of Venezuela, Caracas.

GREAT RAILWAY OF TACHIRA.

The Great Railway of Tachira (El Gran Ferrocarril del Tachira, Venezuelan capital) is 120 kilometers (74.5 miles) long and runs from Encontrados on the Catatumbo, a river emptying into Lake Maracaibo, southward to San Felix. It is the principal outlet for the State of Tachira, its capital, San Cristobal, and the Colombian Department of Santander. The gauge is 1 meter (3.28 feet), the rail runs 40 pounds to the yard, the maximum grade is 2 per cent, the minimum curve radius 75 meters, and there are 6 bridges with a total length of 332 meters. The country traversed for a distance of 110 kilometers is level, and for 10 kilometers it is broken. The average construction cost is given as only 61,135 bolivares per kilometer. Rolling stock consists of 7 locomotives with a total weight of 210 tons, 6 passenger coaches, 34 flat cars, 32 box cars, and 4 stock cars. The passenger tariff is equivalent to 6.8 cents per mile for first class and 3.4 cents per mile for second class. The northbound, or export, freight rate is 21 cents per ton-mile and the southbound, or import, rate 35 cents. The amount of cargo transported annually varies greatly, depending almost entirely upon the price of coffee and the size of the crop. In 1902, 11,113 tons, and in 1903, 27,582 tons were transported. The latter figure is the highest ever reached.

The capital stock of the company is 7,000,000 bolivares, or \$1,351,000, fully paid in. American interests own some of the stock and, contrary to the usual rule in Venezuela, nearly all the material is of American origin. Owing to its moderate capitalization and construction cost this railway shows better returns than any other in

Venezuela. The gross earnings for 1913 were 10.88 per cent, compared with 8 per cent for the next best road. Its principal difficulties are with inundations by the Catatumbo River, which threaten the destruction of the port of Encontrados, and the greatest obstacle to the growth of its traffic is the fact that merchandise destined for its territory must undergo so many handlings en route that the cost is greatly increased and the consumption correspondingly diminished. The local address of this railway is Señor Pedro N. Olivares, Gerente del Gran Ferrocarril del Tachira, Maracaibo, Venezuela.

LA CEIBA RAILWAY.

The La Ceiba Railway (El Ferrocarril de La Ceiba, Venezuelan capital) is 50.6 miles long and runs from the port of La Ceiba on Lake Maracaibo toward the city of Trujillo in the State of the same name. The gauge is 3 feet, the rail weight 40 pounds to the yard, the maximum grade 3 per cent, the minimum curve radius 80 meters, and there are 37 bridges, with a combined length of 1,356 meters. Rolling stock consists of 6 locomotives, with total weight of 135 tons, 7 passenger coaches, 7 flat cars, 34 box cars, and 2 stock cars. The passenger tariff equals 5.3 cents per mile first class and 3.8 cents second class, and the freight rate is 31 cents per ton-mile.

Capital investment and capital stock are both stated as 8,000,000 bolivares (\$1,544,000). Gross receipts were 1,285,872 bolivares in 1896, 582,160 bolivares in 1905, and 975,445 bolivares in 1915. When this line was only half its present length and the capital only 2,000,000 bolivares it earned 17½ per cent, whereas now its returns are only about 5½ per cent. In 1912 there were 21,051 tons of cargo transported, and in 1915 only 14,874 tons. Like most Venezuelan railways, this one suffers severely from the competition of the pack mule. The address of the company is Señor R. Belloso Rincon, Gerente del Gran Ferrocarril de La Ceiba, Maracaibo, Venezuela.

SANTA BARBARA-EL VIGIA RAILWAY.

The Santa Barbara-El Vigia Railway (Venezuelan capital), with 37 kilometers (23 miles) in operation, and a contract length of 60 kilometers, runs from Santa Barbara, a port on the Escalante River, which empties into Lake Maracaibo, toward the city of Merida in the State of the same name. The gauge is 1 meter (3.28 feet), the rail weight 40 pounds to the yard, the steepest gradient 2 per cent, the minimum curve radius 100 meters, and there are 15 bridges with a combined length of 138 meters. The rolling stock consists of 5 locomotives with a total weight of 124 tons, 6 passenger coaches, 12 flat cars, 14 box cars, and 1 stock car. The passenger rate is 6 cents per mile for first class and 4 cents for second class, and the freight rate equals 39 cents per ton-mile for imports and 34 cents per ton-mile for export cargo.

The construction cost is stated as 3,021,880 bolivares (\$583,223). It was built by a French company, under guaranty, and was taken over by the Venezuelan Government in 1895. Gross receipts have increased steadily from 154,020 bolivares in 1909 to 465,869 bolivares in 1915. In 1892 the road was partially destroyed by an inundation of the Chama River; from that year locomotives operated only to

kilometer 37 and cars were drawn by mule power to kilometer 47, where pack transport began, but in June and July, 1915, new floods of the Chama destroyed still more of the line. The Government has appropriated its rental to reconstruction, and the work is progressing.

Of the three lines owned by the Government this is the only one that shows an operating profit. It is not managed directly, but is leased to Señor J. A. Redondo, Santa Barbara, Venezuela.

GUANTA-NARICUAL RAILWAY.

The Guanta-Naricual Railway (Venezuelan capital) is 25 miles long and runs from the port of Guanta (situated east of La Guaira) to the city of Barcelona and the coal mines at Naricual. It was built under a guaranty of interest and was bought by the Government in 1895. The gauge is 3 feet 6 inches, the rail weighs 40 pounds to the yard, the maximum grade is $2\frac{1}{2}$ per cent, and the minimum curve radius 125 meters. There are 6 bridges with a combined length of 265 meters. The rolling stock consists of 3 locomotives weighing altogether 60 tons, 8 passenger coaches, 6 flat cars, and 6 box cars. The passenger tariff is $6\frac{3}{4}$ cents per mile for first class and 5 cents per mile second class, and the freight rate is equal to 34 cents per ton-mile. The capital investment is given as 5,199,745 bolivares. The gross income in 1892 was 109,445 bolivares, and with occasional and slight recoveries fell continually until, in 1913, it was only 58,625 bolivares. In 1915 receipts were 103,023 bolivares, or 8,124 bolivares less than expenditures.

The road is operated by the Government through an administrator who also manages the coal mines at Naricual and the pier at Guanta. In October, 1915, the Neverí River was declared open to coastwise navigation. This decision caused a great decrease in the amount of cargo carried by the railway between the city of Barcelona and the port of Guanta, so that now the line is almost entirely dependent upon the freight paid by coal from the mines at Naricual. The address of the manager is Señor Juan G. Aldrey, Administrador del Ferrocarril de Guanta a Naricual, Barcelona, Venezuela.

CARENERO RAILWAY.

The Carenero Railway (French capital) is 34 miles long and runs from the coasting port of Carenero along the coast, serving the cacao-producing section known as the "Barlovento." The gauge is 3 feet, and the rail runs 40 pounds to the yard. Rolling stock consists of 5 locomotives weighing altogether 90 tons, 5 passenger coaches, 6 flat cars, 22 box cars, and 9 stock cars. The passenger tariff equals 6.28 cents per mile, and the freight rate 46.6 cents per ton-mile. Despite these rates the line has shown a favorable balance in only 4 years out of the last 27. The heaviest traffic was in 1910, when 9,937 tons of freight were transported. In 1915 tonnage was 7,506, and the gross income was 312,614 bolivares, or 21,749 bolivares less than expenses. The road's management also runs a steamship line between Carenero and La Guaira. The owner is Sr. Victor Crassus, of Caracas, and the manager is Sr. R. E. Crassus, of Rio Chico, Venezuela.

CORO-LA VELA RAILWAY.

The Coro-La Vela Railway (Venezuelan capital) is only $8\frac{1}{2}$ miles long, and its construction cost is 1,040,000 bolivares (\$200,720). It connects the port of La Vela with the city of Coro, and is national property. It is operated by Sr. José M. Capriles as agent of the Government. The road has 2 locomotives, 1 passenger car, 1 flat car, and 1 box car. Gross receipts were 68,098 bolivares in 1898, and 35,893 bolivares in 1915. For the $8\frac{1}{2}$ miles the price of passage is 2 bolivares (38.6 cents), and the freight on a ton of merchandise 20 bolivares (\$3.86). Lower rates have been authorized for freight, but in the correspondence it was stated that these were to be temporary, lasting only until the carters gave up competing with the railway and found other employment. At present the line barely pays expenses.

LINES AND EXTENSIONS CONTEMPLATED OR SUGGESTED.

The Caribbean Coal Co. obtained in 1917 a concession for a railway from deep water to its mining property on Lake Maracaibo. The plan calls for the construction of a port at Castilletes capable of admitting vessels drawing up to 35 feet at all times and provides that no port charges of any kind shall be collected. There is now about 16 feet of water at Castilletes. From the port a railway 150 kilometers (93 miles) long and with branches of 50 kilometers (31 miles) in length is to be constructed. The line is to be of standard American gauge and is to have a one-way capacity of 10,000 tons daily. The maximum freight charges permitted are lower than the minimum now charged on existing lines in Venezuela.

The coal on the property of this company is said to be of the very best quality and to exist in large quantity. The port of Castilletes will be only 595 miles from Colon. Its establishment as a free port in so far as port charges are concerned will probably affect adversely the prosperity of Curaçao and will bring changes to Maracaibo. Should the construction of the port and railway and the development of the mines be carried out according to the program announced, this will be the most important industrial event that has occurred in Venezuela for many years.

Caracas newspapers announced early in 1917 that Dr. Manuel Silviera and Mr. C. A. Hutchings were seeking a concession from the Government for the construction of a railway from El Palito, near Puerto Cabello, to the station of La Rosita on the San Felipe branch of the Bolivar Railway. At present the Bolivar Railway, which runs from the port of Tucacas to San Felipe and Barquisimeto, is entirely separated from all other lines; the proposed link, about 40 miles in length, would connect it up with the road from Puerto Cabello to Valencia, and thus with the several lines radiating from Caracas, greatly facilitating communication between the capital and the important States of Yaracuy and Lara. Mr. C. A. Hutchings, as previously stated, is the general manager of the Bolivar Railway.

The Great Railway of Tachira holds a concession for 20 years from 1913 for the extension of its line to the city of San Cristobal,

and a preference for building thence to Periquera at the junction of the Apure and Uribante Rivers. The latter extension would extend into the plains, and would develop a large section of good cattle country.

The Bolivar Railway contemplates several extensions and branches at some future time, but construction is not expected soon.

The Great Railway of Venezuela has a concession for the extension of its line from Valencia to San Carlos and the preferential right to construct a branch from Cagua to Villa de Cura and Calobozo, both San Carlos and Calobozo being situated in good but only slightly developed cattle country.

A railway 108 kilometers (67 miles) long from Valencia westward through five towns to Nirgua in the State of Yaracuy has often been suggested, but as the country is rough it is possible that such a line could not be built cheaply enough to pay. The manager of the Puerto Cabello-Valencia Railway was granted a concession for a cableway over this route.

The excellence of the harbor of Guanta has suggested many projects for roads thence into the interior, but as these districts are practically uninhabited every one of the proposed roads would have to await a problematical development of the country before getting returns.

In the southernmost States of Venezuela and in eastern Colombia land values are merely nominal, but with adequate transportation this would be one of the great meat-producing areas of the world, with the advantage of being thousands of miles nearer to consuming centers than Australia or the River Plate. Running for the most part over level, treeless plains, a railway would not be costly, but notwithstanding this fact there is no indication that its construction is being considered at present.

NEW LAW GOVERNING RAILWAY CONCESSIONS.

A new law governing railway concessions passed the Venezuelan Congress and was signed by the Provisional President June 12, 1917. The principal difference between this law and the former one is that the provision by which all railways constructed under concessions became the property of the Government after a specified term of years is changed, and railways to be built under the new law will be fully and perpetually the property of the parties constructing them except that such ownership may not be transferred in whole or in part to any foreign Government. It is hoped that under the more liberal terms of this new law foreign capital may undertake the construction of railways which the country so badly needs for its internal development.

SECURITIES AND QUOTATIONS OF BRITISH-CONTROLLED LINES.

The following table will indicate the amount of securities outstanding and the quotations thereof of important British-controlled railways in Venezuela:

Securities.	Amount	High price since 1911.	Price January, 1918.
LA GUAIRA-CARACAS RAILWAY.^a			
Stock.....	£350,000	95	92
5 per cent debenture stock redeemable 1982.....	370,000	100	78
PUERTO CABELLO-VALENCIA RAILWAY.^b			
Shares (£10 par).....	460,000	3½	3
5 per cent first-charge bonds.....	170,000	95	74
5 per cent second-charge bonds.....	170,000	86	(c)
BOLIVAR RAILWAY.^d			
Ordinary shares (par £1).....	683,200	18s. 9d.	7s. 2d.
5 per cent preference shares (par £1).....	292,800	17s. 6d.	13s.
6 per cent debenture stock.....	250,000	106	83
6 per cent scrip.....	23,241	.....	80½
CENTRAL RAILWAY OF VENEZUELA.			
Stock.....	200,000	(e)	(e)
6 per cent first debentures f.....	240,000	81	4½
6 per cent second debentures.....	134,000	85	12½

^a Dividends of from 5 to 8 per cent per annum have been paid during the period 1910 to 1917, inclusive (1917 dividend, 5 per cent).

^b A dividend of 10s. was paid on the stock in March, 1917.

^c No longer quoted.

^d Preferred dividends have been at the annual rate of 5 per cent, 1910 to 1913; the 5 per cent declared in 1914 and the 3 per cent in 1915 were paid in 6 per cent scrip, as above, to be converted into 6 per cent debentures prior to Dec. 31, 1918, or, if not converted, to be paid off at par as soon as possible. All subsequent preference dividends have been at the full rate. In 1912-13, 2 per cent was paid on the ordinary stock; no other dividend on this stock has been paid.

^e Not quoted.

^f Interest on first debentures is dependent on income until paid in full for three consecutive years; rate for 1917, 3 per cent

PUBLIC UTILITIES.

Public-utility development in Venezuela has progressed along modest lines. A number of the larger cities and towns have electric lights and there are electric traction lines or tramways otherwise propelled in Caracas, Valencia, Maracaibo (two), La Guaira (the line to Macuto), and Cumana. There is a large telephone company in Caracas, which reaches out into the country, and a smaller local concern operating to the eastward of Caracas. The capital city is the home of a substantial number of public-utility enterprises, most of which are described in the Appendix (see p. 526). The Caracas Electric Co. utilizes El Encantado Rapids in the Guare River for the generation of the power. The fall of the rapids is 111 feet and the horsepower developed is 1,050. Another plant at Los Naranjos, 2 miles higher up the river, furnishes an additional 1,500 horsepower. The water supply in the important centers is said to be good and ample. Merida, capital of the mountain State of the same name, is one of the electrically lighted cities; the power is furnished by the torrential Chama River, the plant being located at a point somewhat above the city. At last accounts the number of lights installed was far in excess of the capabilities of the existing power plant, although much greater horsepower might readily be obtained. There is, needless to say, still much to be done in the public-utility development of the Republic.

MINING ENTERPRISES.

There are four minerals existing in the Republic of Venezuela that have become commercial commodities—copper, gold, coal, and iron.

COPPER.

Copper ores are known to exist in the States of Carabobo, Lara, and Merida. The important mines worked to-day are the Aroa mines owned by the South American Copper Co., a British company. These were formerly operated as the Quebrada mines, and were worked by aborigines before the coming of the Spaniards. Early in the nineteenth century a company, with head office at Baltimore, Md., operated the most important of these mines and obtained about 43,000 tons of high-grade carbonate and oxide ores. Later the mines were taken over by Venezuelan interests and still later by a British company. The Venezuelan company, it is said, obtained about 100,000 tons of medium and high grade ore. Between the years 1873 and 1894 the mines were actively operated by the Quebrada Land & Copper Co., and about 271,770 long tons of ore were produced. The maximum production during this period was for the year 1891. Adverse political conditions, a severe flood, and declining prices for the mineral brought about the closing of these mines, and operations remained practically at a standstill until the South American Copper Syndicate was organized in 1907 to acquire and work the property. The capitalization of this company is only £15,000 (par 2s.), and phenomenally large dividends have been paid. In 1908–9 the rate was 25 per cent; in 1909–10, 30 per cent; 1910–11, 145 per cent; 1911–12, 250 per cent; 1912–13, 350 per cent; 1913–14, 75 per cent; 1914–15, 62½ per cent; 1915–16, 150 per cent. Only ore averaging 8 per cent or more was shipped to Europe for smelting purposes. The company decided several years ago to erect a smelter to treat the lower-grade ore that exists in large quantities. The company is being repaid for its investment in the property many times over, and its shares command a very high premium. The mines are located along the line of the Bolivar Railway, which runs from the port of Tucacas to Barquisimeto, and the copper forms the principal source of revenue for the railway.

Copper mines were worked with profit, in former times, at Sebo-ruco, Bailadores, and other places in the Andes and the Caribbean hills. The industry seems to hold the promise of satisfactory development when better means of transportation are available.

GOLD.

Gold has been found in almost every State in Venezuela. In Guayana large quantities of the mineral have been produced, and new discoveries are being rather frequently reported. El Callao mine, located near Guasipati, a town situated on the right bank of the Yuruari River, was formerly important. The mine was worked by the Indians in early days, as were numerous other gold discoveries in the neighborhood. In the year 1870 the El Callao Mining Co. was formed and during the period 1871 to 1892 paid in dividends the sum of 48,322,000 francs, or £1,933,288. The company during the later years of its existence became involved in lawsuits, and very

little work has been carried on since dividends were suspended in 1892. Other mining properties that have been operated at various periods include the Chile, Choco, Nacupai, Potosi, Union, Victory, etc.

Under existing conditions Venezuela offers better opportunities for the individual prospector than for the large companies equipped with costly machinery. Transportation and freight costs to the mines, most of which are not easily accessible, are prohibitive, and there are many other difficulties to be encountered.

In the Amazonas Territory gold is produced, the natives carrying considerable quantities of the dust into British Guiana to exchange for rifles and ammunition. There is a large stretch of country in this Territory that is similar in composition to the gold-producing areas in which the El Callao mines are located. This mining country, however, is almost inaccessible.

It may readily be seen that lack of proper transportation facilities greatly retards the development of the gold-mining industry. The distance of 130 miles from the port of San Felix (on the Orinoco River, below Ciudad Bolivar) to Guasipati requires a journey of from 10 to 20 days for wagons, the trail being frequently a sea of mud. Once railways or automobile roads are opened into this interior fastness, the probabilities are that the gold industry will greatly increase in importance.

COAL AND IRON.

Coal has been found in various sections of the Republic. The quality of the mineral is fair, and the product is in great demand locally. The principal mines are at Naricual, about 16 miles from Barcelona. The coal there is of a later geological period than British coal and is a bright burning variety. It is used on the various local steamers and on some of the railways, and is also mixed with pitch from Trinidad into briquettes. The Guanta Railway, the coal mine, and a small briquette factory are all local industries controlled and operated by Venezuelans. Small coal mines have been operated on and near the shores of Lake Maracaibo, and outcroppings have been found in the States of Merida, Tachira, and Trujillo. A mine was opened a short time ago along the Unare River, about 120 miles from La Guaira and about 15 miles west of the Naricual mines. The mine is said to be located less than 5 miles from tidewater and immediately upon the bank of the river. Production was stated to amount to upward of 20 tons a day, with prospects of considerable future increase. According to Consul Homer Brett, of La Guaira, the mine is under the management of Dr. Andrés Hernandez Caballero, Puerto Unare.

The iron-ore deposits of Venezuela occur mostly in the extreme eastern section of the Republic. Ore has been shipped from the country at various times, a consignment of several hundred tons sent to the United States in 1901 being examined and described as magnetic carrying upward of 60 per cent of ore. In 1910 a company, known as the Canadian-Venezuelan Ore Co. (Ltd.), was formed and received a concession for the whole of the known iron-bearing territory. The company agreed to pay to the Venezuelan

Government \$0.20 per ton of ore, in addition to an initial payment, until \$385,000 had been paid, and \$0.10 per ton thereafter. The capitalization of the company consisted of \$1,000,000 first-mortgage 6 per cent bonds due 1927 and \$4,347,500 common stock. The enterprise was presumably unsuccessful, and the company went into liquidation in 1913.

OTHER MINERALS.

Salt constitutes a Government monopoly. It is gathered in the State of Zulia, and a large amount is annually shipped into Colombia. The salina of Araya, located on a peninsula of the same name, not far from the port of Cumana, is probably the most important salt deposit in the Republic. This is an extensive surface deposit of pure sodium chloride. The usual method employed in gathering the salt is to dig pits and fill them with water in such a way as to dissolve the salt of the surrounding sands and clays, to be later evaporated to dryness in the sun. Salt deposits also occur near Barcelona, on the island of Coche (near the Peninsula of Araya), and elsewhere.

Sulphur exists about 11 miles inland from the port of Carupano in what appears to be commercial quantities. A company, incorporated in Germany, was formed in 1903 to work this deposit. The capitalization of this company was said to have been 2,000,000 marks.

A very large variety of other minerals have been located in various portions of the Republic, but presumably none of them have as yet been developed commercially. The mineral resources of the country are certainly very great, and a promising future is surely in store for the industry, once better systems of roads, railways, and other means of interior communication are established.

PEARL FISHERIES.

The pearl fisheries of Margarita Island have been of importance for centuries, although the production of modern times has been far less than during the early days of Spanish rule. Pearling is the chief industry of the island and its neighbors, and a large number of the inhabitants are employed on the sloops and pearling vessels. Approximately 400 boats and 1,600 people were engaged in the work according to recent statistics. Mother-of-pearl is also a commercial product of Margarita Island.

THE PETROLEUM INDUSTRY.

The petroleum fields of Venezuela have attracted a good deal of attention during the past three or four years. New deposits are coming to light from time to time, and a fair amount of American, British, and Dutch capital is being attracted. The Government of Venezuela is doing what it can to assist in the development of the industry. The principal fields thus far located are: (1) The Bella Vista, near Maracaibo; (2) in the Mara district, near the Liman River asphalt lake; (3) on the Sardinata River, which runs into Colombia; (4) in the district of Colon, State of Zulia, south of Lake Maracaibo (largest field in Venezuela); (5) in the district of Sucre,

on Lake Maracaibo; (6) the Perija field, to the west of Lake Maracaibo; (7) the Pedernales field in the delta of the Orinoco, where one of the river outlets empties into the Gulf of Paria. This last is on the properties of the General Asphalt Co. (see p. 391). An extensive article, "Venezuela's Petroleum Industry," written by the American Minister to Venezuela, Hon. Preston McGoodwin, is here reproduced in full:¹

There are in Venezuela six petroleum companies engaged in development work on an extensive scale—the Caribbean Petroleum Co., the Colon Development Co., the Venezuelan Oil Concessions (Ltd.), the Venezuela-Falcon Oil Syndicate (Ltd.), the Bermudez Co., and the Pauji Concession.

CARIBBEAN PETROLEUM CO.

The first-mentioned of these—the Caribbean Petroleum Co.—acquired what was known as the Tregelles concession from the General Asphalt Co., and during 1912 and 1913 employed a force of 35 experienced geologists, assisted by a great number of Venezuelan civil engineers, who covered nearly every foot of territory included in the concession. At the end of two years the company had staked out and definitely selected 1,028 areas of 500 hectares (1,235 acres) each, in which it intended, within the time allowed, to drill for oil.

For its preliminary work the company selected two sections for drilling, one on each side of Lake Maracaibo, State of Zulia, in the extreme northwestern part of Venezuela. One of these sections is 16 miles east of the lake, where material has to be transported through swamps over a road built by the company. When the road was completed and properly screened houses had been erected for the employees, drilling equipment for three wells was immediately shipped in and drilling commenced in January, 1914. On this area the company has drilled six wells, from 600 to 1,700 feet in depth, in all of which oil has been found. Enough work has been done to prove conclusively that this is a commercial field. Most of these wells are capped.

The company has erected three 55,000-barrel steel tanks, has laid a pipe line to the shore of Lake Maracaibo, and has built a refinery at the terminal of its pipe line at a place called San Lorenzo, 60 miles south of Maracaibo. This refinery began operations on August 16, 1917, and is expected to supply a large proportion of Venezuela's consumption of gasoline and kerosene. It has a daily capacity of about 2,000 barrels (of 42 gallons each). Every grade of oil except lubricants will be refined at this point. Pumps and pipe lines have been installed for loading tank steamers or barges for the shipment of the oil from Venezuela.

The field selected by this company on the western side of Lake Maracaibo is about 50 miles from the shore of the lake, and a road had to be built to it for the transportation of material through a flat but heavily wooded country. As on the east side of the lake, the company delivered to this site equipment sufficient for drilling three wells. Two wells were sunk to a level of about 1,000 feet and

¹ The American Minister's report extends as far as the heading "Development of Asphalt Deposits," on page 391.

abandoned prior to April, 1915. In June, 1916, work was started on four additional wells in this section for testing purposes.

The same company is developing areas in other sections, as it is required to do under the terms of its contract with the Government of Venezuela. Although the section on the east side of Lake Maracaibo undoubtedly contains oil in quantities sufficient for commercial development, no information is obtainable upon which to base an estimate of probable future production.

COLON DEVELOPMENT CO.

Under what was known as the Andrés Jorge Vigas concession, granted January 3, 1907, for oil rights in the district of Colon, State of Zulia, the Colon Development Co., an English corporation, commenced drilling operations early in 1914. This company encountered difficulty in its geological exploration work, owing to roving bands of Mutilones Indians. It was necessary to employ from 60 to 100 armed guards with the exploring parties, and a force of 50 to 60 guards has been kept at the drilling camps.

Development was started by this company about 100 miles from the nearest settlement, and, although there are rivers for transporting material, it was necessary to expend immense sums in delivering equipment. The first drill was started the latter part of 1914, and after great difficulties had been experienced with drillers and laborers the first well was abandoned at a depth of 700 feet. The company had just succeeded in drilling its second well on the Rio Oro. The depth attained is somewhat over 1,000 feet, and the oil is of light gravity. The capacity of this well is said to be approximately 200 barrels a day. However, means of transportation must be provided, and the company is now engaged in building roads for that purpose; also in drilling another well on the Rio Tarra, now said to have reached a depth of about 500 feet.

The best information to be had from persons who are familiar with the territory occupied by the Colon enterprise is to the effect that the company will produce oil in commercial quantities.

VENEZUELAN OIL CONCESSIONS.

On February 28, 1907, a contract was granted to one Antonio Aranguren for the development of asphalt in the districts of Bolivar and Maracaibo of the State of Zulia, and on June 18, 1912, a decree was issued by the Government of Venezuela, bestowing upon the concessionaire the right to exploit petroleum. Some question has been raised as to the legality of this latter decree, but, notwithstanding protests made by other oil-producing companies, the decree has been allowed to stand. In the latter part of 1913 it was transferred, after preliminary geological investigation, to the Venezuelan Oil Concessions (Ltd.). This concern, which is a subsidiary of the Royal Dutch Co. for the Working of Petroleum Wells in Netherlands India (Dutch Shell Co.), is incorporated in Great Britain with an authorized capitalization of £500,000, of which £355,000 has been subscribed and called up.

Four drillers and an office staff and field superintendent were sent out from London late in 1913 by this company. Two wells were

started immediately, one at a point on the shores of Lake Maracaibo called Santa Rita, and the other in the swamp just south of Santa Rosa, also located on the shores of the lake. Drilling in the Santa Rita well was carried to a depth of 1,600 feet without any trace of oil having been encountered. At Santa Rosa an oil sand of good promise was encountered at 800 feet, and at 1,500 feet another sand was found which produced oil of about 20° B. Undoubtedly upon striking this last sand a great quantity of oil was produced, but 10 days after the strike the production was not more than 10 barrels a day. Apparently no attempt was made to pump this well, and it seems to have been abandoned.

The company encountered very great obstacles because of the general unhealthful conditions under which the men were compelled to work and the impossibility of keeping them protected from the very dangerous malarial mosquito found in those localities. Also, the company seemed to realize, about the middle of 1914, that the system used in drilling was not suitable to the conditions and placed an order for drilling equipment in the United States. It was planned to start work with this new machinery immediately, but operations were seriously hampered by the outbreak of the European war.

Although work has been carried on continuously, it has been done with a very limited force, and no very satisfactory results have been obtained. At last accounts the company had succeeded in drilling seven wells, varying in depth from 600 to 1,800 feet and scattered over a considerable area. It has been reported that oil was found in five of the seven wells, and that at least two of them give promise of good production.

VENEZUELA-FALCON OIL SYNDICATE.

On July 22, 1907, there was granted what is known in Venezuela as the Bernabe Planes concession for the development of oil in the district of Buchivacoa, in the State of Falcon. After it had been offered for sale for a number of years an option was given in 1913 to an English company called the Venezuela-Falcon Oil Syndicate (Ltd.). After preliminary investigations lasting about a year and a half, the company finally agreed to start development work, but it appears that the equipment has not yet been delivered.

BERMUDEZ CO.

On July 24, 1910, the General Asphalt Co., which owned the large asphalt deposit known as Bermudez Lake, situated in the extreme northeastern part of Venezuela at a place called Guanoco, obtained a concession for the oil rights in the vicinity of the lake; also on the island of Pedernales and the peninsula of Paria. This concession, obtained by R. M. Valladares, was transferred to a subsidiary of the asphalt company called the Bermudez Co. Very soon after acquiring the right the Bermudez Co. sent a force of 10 geologists over its concession and finally selected 19 areas of 500 hectares (1,236 acres) each in the vicinity of the asphalt lake, 6 areas on the peninsula of Paria, and 4 areas on the island of Pedernales. The terms of the concession of the Bermudez Co. called for almost immediate exploitation of all

areas selected. By June, 1913, wells were being drilled in all of the 29 areas. On the 6 areas on the peninsula of Paria wells were sunk deep enough to demonstrate the impossibility of producing oil in commercial quantities, and all of them were promptly abandoned.

At Pedernales the company drilled seven wells ranging in depth from 200 to 1,000 feet, occasionally finding traces of oil, but not in sufficient quantities. In this region the company encountered great difficulties because of heaving sands, soft mud, and gas pressure, all of which made it necessary to adopt several methods of drilling.

In the Guanoco area wells have been sunk in varying depths from 200 to 4,200 feet. In some of them a heavy oil, almost an asphalt, has been found, and invariably in fair quantities, but it is too heavy to pump. Two additional wells have been started in this region recently, but no commercial results have been obtained. The company has done considerable geological work to locate a proper place to drill where it could reach oil, which is still believed to exist in large quantities in that district.

The operations of this company have been exceedingly difficult, because nearly all of the wells in the three regions described are located in swamps, and it has been necessary to lay portable tracks on trestles to transport drilling material. Although the general camp of the company was located at the same place as the headquarters of the General Asphalt Co., where several hundred employees are maintained constantly, yet the field camps have been in very unhealthful places and there has been considerable sickness among the employees.

PAUJI CONCESSION.

On January 16, 1909, a petroleum concession was granted to Joaquin Briceño on 3 hectares (7.4 acres) of land adjoining a place known as Pauji, 30 miles east of Lake Maracaibo. The right was secured doubtless because of the abundant evidence of asphalt seepages, which are very numerous in that locality. A company was formed in the city of Maracaibo with a large nominal capital but with only about \$50,000 for actual work. An American has been investigating the property, and it is reported in Caracas that drilling machinery will shortly arrive. Stockholders are confident that development work will be pushed rapidly.

In addition to the properties of the six companies above enumerated, there are not more than three or four ancient and modern concessions in existence, and no other development is now known to be in progress.

OIL AND COAL DEPOSITS ADMINISTERED BY GOVERNMENT.

A resolution of the Venezuelan Minister of Fomento (Development), published November 28, 1917, provides as follows:

The Provisional President of the Republic directs that in conformity with article 3 of the law of mines the petroleum and coal deposits in the States of Trujillo, Merida, and Zulia which are not already leased and which belong to no private parties or companies, shall be administered henceforth by the Federal Executive.

In another resolution of the same date announcement is made of the appointment of an Administrator of Mines for the district mentioned.

The purpose of these measures is to provide a new source of income.

DEVELOPMENT OF ASPHALT DEPOSITS.

The General Asphalt Co., an American corporation, leases for 99 years, through its subsidiary, the New York & Bermudez Co., the celebrated Bermudez Pitch Lake, near Guanoco, and fee-simple titles to 4,800 hectares (11,861 acres) of land underlying or surrounding the lake. The area covered by the pitch deposit is larger than the famous pitch lake of Trinidad, but the depth is said to be somewhat less. The capitalization of the General Asphalt Co. consists of \$17,000,000 common stock, \$14,000,000 preferred stock, \$1,900,000 6 per cent gold debentures, and \$1,083,975 New Trinidad Lake first-debenture sixes, due 1925. The General Asphalt Co. and its subsidiaries reported gross earnings of \$11,677,309 for the year ended January 31, 1917, as compared with \$15,279,352 earned during the year ended January 31, 1914. Surplus applicable to dividends reported in 1916-17 amounted to \$921,965, as compared with \$1,303,755 in 1913-14. Dividends of 5 per cent per annum have been maintained on the preferred stock for some years. The company's interests in petroleum concessions have been dealt with briefly in preceding paragraphs. Bermudez Asphalt Lake in eastern Venezuela and Trinidad Asphalt Lake in the island of Trinidad, British West Indies, are the two largest reservoirs of evaporated petroleum in the world. Bermudez Lake covers 1,100 acres, and the asphalt contained therein represents an outflow of 80,000,000 barrels of oil. There is a constant flow of oil, which spreads out over the lake, replenishing it. The seepages are found on a line from one end of the lake to the other, on its longest axis, up to a thousand feet wide. The immense accumulation of asphalt and the broad belt of active seepages are proof of oil-bearing formations below. At nearly all places in the world where commercial quantities of oil have been found underground, especially in much folded or faulted regions, adequate evidence of its presence is given by surface seepages. The structural conditions at Bermudez Lake are an anticlinal fold, along the crest of which the seepages occur, in which the folding strain caused fracturing, followed by cross folding and fracturing and faulting of the strata and the forming of a dome. The formation consists of massive black shale, a layer of coarse sandstone, and thick beds of fossiliferous limestone. The limestone is supposed to be the source of the oil and the sandstone its reservoir, whence it escapes to the surface along the fault line.

Referring to the General Asphalt Co.'s interests in the petroleum deposits of western Venezuela, the company's reports for several years past have described conditions and progress. Several paragraphs from these various reports are here reproduced. The annual report for 1912 states as follows:

Our subsidiary, the Caribbean Petroleum Co., has a concession from the Government of Venezuela dated January 2, 1912, for the petroleum rights in the following States in Venezuela: Sucre, Monagas, Anzoategui, Nueva Esparta, Tachira, Trujillo, Merida, Zulia, Lara, Falcon, Carabobo, Yaracuy, and the delta of the Orinoco. The concession provides for an exploration period of two years, to be followed by a lease for 30 years of such parts of any of such States not previously occupied by similar concessions as we shall have filed upon in due

course for permanent operation in lots of 1,250 acres each, upon which we shall pay 8 cents per acre per annum land tax and a royalty on petroleum produced and shipped at the rate of 40 cents per ton, equal to about 10 per cent on oil produced and shipped.

The company's report for 1915 stated that immediately after the concessions in western Venezuela had been obtained geologists were sent to investigate the field thoroughly. In the early stages of this work it became apparent that the total oil-bearing area covered by the Caribbean Petroleum Co.'s concession would be very large, and that the proper development of the field would require far more capital than the General Asphalt Co. cared to spend. Therefore it was decided by the directors, after consideration, that it would be wise to make arrangements whereby experienced and highly successful interests possessing ample capital would undertake the development of this large property at their own expense and risk. The essential features of the arrangement entered into with such interests, as quoted in the annual report for the year 1915, were as follows:

(1) A repayment to the company of its disbursements in connection with all of the areas in Venezuela other than those immediately adjoining the Bermudez Lake property, which areas have been reserved for the exclusive use of the company itself.

(2) A substantial participation in the entire net profits of the enterprise without obligation to furnish any part of the capital required.

(3) A contract for the life of the concession whereby the company has the right to purchase petroleum for its own business and purposes, with ample protection to its asphalt business.

After making these arrangements the work of exploration was continued under the immediate supervision and direction of the General Asphalt Co., with increased field forces, and the most thorough examination possible was made of all oil-bearing areas in Venezuela. As a result of this work title was perfected to oil rights upon 1,028 areas of 500 hectares each, a total area of 514,000 hectares, or about 1,259,580 acres.

After the perfecting of title to these areas a period of three years is allowed by the concession for the purpose of commencing development work, which must consist of one well upon each area, with, however, the privilege under certain circumstances of securing one extension of three years additional for this purpose.

The greater part of these areas lie in the wild and undeveloped portions of the country, but are reasonably accessible to the shores of Lake Maracaibo, whence oil may be transported by pipe lines and thence by tank steamer. Of the total of 1,028 areas of 500 hectares each, 789 areas are in western Venezuela, in the Maracaibo region, and 239 in eastern Venezuela, accessible to the Gulf of Paria. Assuming that after further critical examination a considerable percentage of these should ultimately be abandoned, there still would remain an enormous area for development, requiring the immediate expenditure of many millions or tens of millions of dollars.

A few years ago a German company acquired a concession to develop asphalt deposits at Pedernales. A small amount of asphalt was shipped, but the company, after an ineffectual struggle, finally abandoned the property. The asphalt and oil refineries are now in ruins.

FOREST PRODUCTS.

The forest resources of the Territories of Guayana and Amazonas are unlimited. In the Guayana forests will be found the giant mora tree, averaging 3 feet in diameter and seldom branching at less than 40 feet from the ground. This timber, dark-red grained, is said to be most excellent for shipbuilding purposes. Mahogany, Venezuelan rosewood, and other hardwood trees are found in pro-

fusion. In Venezuela the same difficulty is met with as in the forests of British Guiana—namely, the growth of a very mixed assortment of trees, this difficulty standing in the way of profitable development unless such development is carried on in a very extensive way.

Wild rubber, balata, vanilla, tonka beans, and other products of the tropical forests are gathered and exported largely through the Orinoco River port of Ciudad Bolivar. Some mangrove bark is also shipped abroad, as are a few Brazil nuts.

It is safe to estimate that more than 50 per cent of the entire area of Venezuela is under forests. It is therefore evident that, as the country develops through the possible influx of population, more attention will in future be given to the vast forest resources, especially with the improvement in transportation facilities that is certain to follow immigration.

STOCK RAISING AND THE MEAT INDUSTRY.

The cattle-raising industry of Venezuela is capable of great development. Much has been said concerning the capabilities of the vast llano territories for the raising of cattle, and the accounts given of the richness of the grasses of these vast plains are not greatly exaggerated. Although certainly inferior to the pampas country of Argentina, the llanos are nevertheless capable of affording pasturage for vast numbers of live stock. Leonard V. Dalton, in his book "Venezuela," says concerning the possibilities of the live-stock industry:

No visitor to Venezuela who penetrates far enough into the country to catch a glimpse of the llanos can fail to be impressed with the possibilities of the country in stock raising and exporting, and yet this great area of pasturage supports, in proportion to its extent, a mere handful of cattle and horses. The quality of the grass of the llanos may be inferior to that of the Argentine pampas, but even such a defect, if existent, may be improved in time, and so far (1912) no pedigreed stock have ever been introduced, nor has the industry ever been seriously handled.

In 1804, according to Depons, there were 1,470,000 cattle, horses, and mules on the llanos, and by 1812 the number had increased to 4,500,000; but during the wars of independence, owing to the depredations of the opposing armies, the number was greatly decreased, and in 1839 was still only a little over 2,000,000. In the meantime, however, the excellent qualities of the Barquisimeto table-land and the Coro and Maracaibo lowlands for breeding goats had been discovered, and the export of goats' horns and hides has been continuously an important item in the trade of western Venezuela. In 1888 the number of head of stock on the llanos had increased to 8,500,000, and at that period many were exported to the other States and islands of America—a few even to the United States. Ten years later revolutions and counter-revolutions had decreased the number to 2,000,000.

The establishment of the Venezuela Meat Products Syndicate works for shipping frozen meats from Puerto Cabello should do much to encourage an industry as yet in its infancy and yet of incalculable interest to the country, once properly developed.

Estimates of the total number of cattle in Venezuela at the present time vary from 3,000,000 to 9,000,000. It is probable that 3,500,000 would be a conservative estimate. Judging from the number of hides exported it seems probable that about 500,000 to 600,000 cattle are killed yearly. Thanks to existing high prices the stock-raising industry is at present prosperous. In 1915 it was stated that there were registered in the Republic 1,288 breeders with approximately \$20,000,000 invested capital. The breeding of stock has begun to

show slight improvements owing to the distribution of a better grade of stock. The slaughter of cows is prohibited by the Government.

AGRICULTURE.

The principal agricultural products of Venezuela are coffee, cacao, and sugar. The coffee trade of the Republic is normally very large, amounting in the year 1913 to 83,921 tons. Coffee was originally introduced into Venezuela near the close of the eighteenth century, and the northern hills and ranges are at present dotted with rich plantations. The best lands are located at an altitude of slightly more than 3,000 feet, although coffee grows readily in Venezuela at any altitude between 1,500 and 6,500 feet. The life of each coffee bush is said to be 50 years, and the quantity produced per tree is one-fourth to one-half pound annually. Exports of coffee for 1916 totaled \$10,552,543.

The cacao of Venezuela is of a high quality and is produced in large quantities in the Maracaibo Lake, Caracas, and Orinoco Delta districts. The amount of cacao exported in 1916 was 15,183 metric tons, compared with 18,281 tons in 1915. The Republic in 1915 ranked seventh among the nations of the world as a producer of cacao and third among the Republics of South America.

The sugar industry of Venezuela is showing splendid progress and is attracting much attention from the outside world. Each year witnesses the construction of new mills, the installation of modern improvements, and the planting of additional acres under sugar cane. The climate of northern Venezuela is well suited for the growth of the cane, and the industry seems destined to develop very greatly in the future. Among the important companies in the field may be mentioned the Tacarigua Industrial Sugar Co. at Macaray, which has installed a mill capable of crushing nearly 1,800 tons of sugar daily; the Petare Sugar Co., with a 400-ton mill; the La Ceiba Sugar Co., at La Ceiba; the Venezuela Sugar Co., of Delaware, at Bobures; the Zulia Central Sugar Co., at El Banco; and the Unión Agrícola de Maracaibo. Most of these companies maintain their local offices at Maracaibo. Much of the sugar is used locally for distillation or for general purposes; some is exported, the export trade in the product being probably destined to increase considerably in the future.

Tobacco, cotton, maize, wheat, rubber, manioc, and other products are also raised. A small amount of the plantation rubber is exported, as is also an occasional shipment of manioc.

MANUFACTURING.

Despite the high import duties generally prevailing in Venezuela, manufacturing has made but little progress. There are several cotton mills in Valencia, their production, though of fair quality, being insufficient for the needs of the community. The tanning industry has made some progress, there being factories devoted to the manufacture of shoes, boots, and saddles. Matches are a Government monopoly, and their manufacture is carried on by a British company, the National Match Factory of Venezuela, capitalized at £219,967. Dividends have been usually 6 to 7 per cent per annum (see p. 528 of the Appendix for description of company's finances). Paper

and glass, neither of the best quality, are manufactured, and there are a number of cigarette factories variously located. There are two important brewing companies in the Republic, the Cervecería Nacional, at Caracas, Valencia, and Puerto Cabello, and the Cervecería de Maracaibo. The approximate capitalization of the two companies is 2,500,000 bolívars and 1,700,000 bolívars, respectively. The Maracaibo company produced 321,195 gallons of beer in 1914 and 252,850 gallons in 1915. The Cervecería Nacional dates from the year 1894. Its original capitalization was 600,000 bolívars, the amount being increased to 2,500,000 bolívars in 1901.

Coal and electric power are both expensive, and it is believed that, following the completion of the petroleum refinery at Curaçao, considerable oil, produced locally, will be used for fuel.

FOREIGN CAPITAL IN VENEZUELA.

An estimate made in the year 1916 indicated that British investments in Venezuela amounted to approximately \$39,905,300 United States currency. This included large holdings in Government external bonds, shares and debentures in four railways (the La Guaira-Caracas Railway, the Puerto Cabello-Valencia Railway, the Bolívar Railway, and the Central Railway of Venezuela), interests in public-utility enterprises at Caracas, the National Match Factory, certain petroleum undertakings, etc.

A very fair amount of American capital has found its way to Venezuela. The interests of the General Asphalt Co. are large, the Caribbean Petroleum Co. and other American interests are important factors in the oil development of the Republic, and there are sugar enterprises financed in the United States. American banks have recently entered the field. The location of the Republic geographically is favorable to closer financial intercourse with the United States.

German interests hold a number of Government bonds, control the Great Railway of Venezuela, running from Valencia to Caracas, etc.

France has from time to time controlled mining enterprises of more or less importance and has been interested in balata and rubber enterprises. The La Ceiba Railway, a local line of some importance, was constructed by French engineers, but whether any shares are held abroad is unknown.

The Royal Bank of Canada, a well-known Canadian institution, has recently opened a branch in Venezuela, while the Venezuelan-Canadian Ore Co. was a Halifax enterprise.

Part 2.—CENTRAL AMERICA.

BRITISH HONDURAS.

INTRODUCTION.

England's Central American colony, British Honduras, has an area of 8,598 square miles, and is bounded on the north and north-west by Mexico and on the west and south by Guatemala. The population of the colony is approximately 42,000, of whom about 13,500 reside in Belize, the capital. This city is the principal seaport and by far the most important center in the colony. A very large proportion of its population consists of negroes. Other important towns are Orange Walk, Stann Creek, Corozal, and Punta Gorda.

BONDED DEBT.

The total bonded debt of British Honduras, as of the year 1915, amounted to £194,735, as compared with £34,736 in 1905. Part of the proceeds of bond issues has been used for the construction of the Stann Creek Railway (see a later paragraph). The annual charges on the debt amount to £9,390, as compared with £2,175 in 1905. The total revenue for the colony in 1915 was £103,718, as compared with £63,742 in 1905.

The bond issues of the colony consist of (1) £9,000 4½ per cent bonds, dated 1888 and due 1918, repayable by means of a 2 per cent sinking fund, cumulative; (2) £20,000 4½ per cent debentures, dated 1894 and due 1923, the sinking fund being 2 per cent per annum, cumulative; (3) £160,000 4 per cent 10-year bonds, principal payable 1921 and convertible until 1920 into 4 per cent inscribed stock, maturing in 1971 and with a sinking fund of 1 per cent per annum. Interest on both bonds and inscribed stock is payable January 1. The loan is now represented by bonds £43,100 and inscribed stock £116,900. The bonds and inscribed stock are not actively quoted.

BANKING.

The banking facilities of the colony are provided by an agency of the Royal Bank of Canada. There would hardly be any opportunity for the location of an American bank there, although it may be noted that the United States normally buys more than three-quarters of the colony's exports and sells about one-half of what the colony buys.

RAILWAYS.

British Honduras possesses only one railway that may be called a common carrier. This is the Stann Creek Railway, 25 miles, running

from the minor port of Stann Creek inland toward the foothills of the Cockscomb Mountains. The railway has erected a pier near the town, and a breakwater enables steamers to load and unload in safety. The cost of the line was approximately £173,000. Gross receipts for 1914-15 were approximately \$28,200 and expenses \$54,000. No further particulars are obtainable. The railway's limited freight traffic consists mostly of bananas and lumber.

In addition to the Stann Creek Railway, there is a small mileage of privately operated tramways to agricultural and timber properties. These lines are of little importance.

There have been projects from time to time for the construction of a line to extend across British Honduras and into the Peten district of Guatemala. This would open to the world some of the finest known tracts of hardwood forests, both in Guatemala and British Honduras. The construction of such a line would be fairly costly and would probably hardly warrant the investment, unless carried out by a company sufficiently supplied with capital to cut enough timber to develop a large proportion of the traffic. Doubtless this proposed line, through the construction of spurs and branches to reach various timber stands, would in time earn a substantial profit, but its business as a common carrier, for a time at least, would hardly prove remunerative. The possible construction of this line is further discussed in the chapter on Guatemala (p. 416).

PUBLIC UTILITIES.

The public-utility field is, of necessity, a very limited one, being confined for the present decade at least to such opportunities as may arise following the possible further growth and development of the town of Belize, which at the present time has but few modern improvements. At present its most important utility is a small electric plant, sufficient for its needs.

PRODUCTS OF THE COLONY.

British Honduras is primarily a producer of forest products. It contains fine forests of mahogany, rosewood, cedar, and other hardwoods, and is capable of supplying large quantities of chicle, rubber, cohune oil, mangrove bark for tanning purposes, logwood, etc. The logwood industry, once the most important in the colony, has been replaced by chicle gathering and hardwood cutting. Chicle exports in good years have exceeded 2,000,000 pounds, valued at more than \$600,000. The rubber industry in the colony has not assumed importance, being confined primarily to the gathering of wild rubber from the forests. The logwood supply has diminished, owing, it is said, to the fact that the supply within easy reach of markets has been nearly exhausted. There is said to be an abundance of the logwood situated in more or less inaccessible places, which will doubtless be marketed at some future time.

As has been stated, a very large portion of British Honduras is under forest. The splendid mahogany trees of the colony have been marketed readily and their exploitation has attracted fair sums of foreign capital, partly American; 10,000,000 feet might be considered a fair annual yield and this production is likely, under normal

conditions, to be maintained or exceeded for many years to come. The numerous rivers and creeks in the colony aid the lumbermen greatly, enabling them to transport the product at moderate costs. Much of the future in the mahogany industry will depend upon possible railways or short railway spurs connecting with the rivers and creeks. Other hardwoods, such as rosewood and cedar, are cut and exported, although not in as large quantities as the mahogany. Mangrove bark is exploited in a moderate way, there being considerable quantities of mangrove trees in the lower parts of the country and bordering the rivers and creeks. Pine is also found in large quantities, although it is probable that little could be done with it commercially.

Labor conditions in British Honduras are not bad nor are wages excessive, and the general field offers an opportunity to those provided with sufficient capital.

Bananas, plantains, and coconuts are exploited in British Honduras and the various planters in the colony are said, on the whole, to be prosperous. The United Fruit Co. has not taken up banana growing there, and the total annual exports of this fruit do not exceed \$250,000. Coconut growing has been carried on with considerable success, and of late years some attention has been given to sugarcane.

Little or no exploration work for minerals has been done in British Honduras. There are no mines of any description in actual operation.

One of the largest companies operating in British Honduras is the Belize Estate & Produce Co., a British corporation, capitalized at £70,000 stock (£60,000 paid up) and £30,000 debentures of 1920 and 1922. No statements of income are made public by the company, but dividend payments are generally at the rate of 10 per cent per annum.

COSTA RICA.

INTRODUCTION.

Costa Rica, ranking fourth in area and fifth in population among the Central American Republics, is one of the most progressive countries in the Americas. School attendance is compulsory, with the result that wideawake communities have been developed, especially in the mountain and plateau regions, which are the main centers of population. Most of the country is healthful to live in, and the excellent sanitary arrangements as well as the precautionary laws enforced by the authorities tend generally to better conditions.

The area of the country is 21,500 square miles (approximately; exact figures are not published), and the population as of December 31, 1915, was 430,700, compared with 334,300 in 1905 and 275,880 in 1895. The birth rate in 1915 was 44.5, and the death rate 22.

San Jose, the capital and largest city, has a population of 35,650. The city has tramways, electric lights, a splendid water supply, and every modern improvement. Other important cities of Costa Rica are Heredia (population 8,240), Port Limon (population 7,845), Alajuela (population 6,480), Punta Arenas (population 4,800), and Cartago (population 4,840).

BONDED DEBT.

The Republic of Costa Rica has outstanding two external loans, as follows:

(a) *Four to five per cent gold refunding bonds of 1911.*—These bonds were issued to the amount of £2,000,000 in 1911, largely to provide for the conversion of the external debt and the internal Port Limon sanitation bonds, the balance being used to provide funds for general purposes. The new bonds bear interest at the rate of 4 per cent per annum for the first 10 years from 1911, and at 5 per cent thereafter. A sinking fund commences operation in 1921. This sinking fund, which will amount to 1 per cent per annum, cumulative, will retire by January 1, 1958. The bonds are secured by a first charge on all the customs duties of the Republic, the proportion necessary to maintain the service to be paid over each month to the agent designated by the parties to the contract. No charge may be made on the customs duties in priority or equality to this issue.

The bonds described above were quoted on the London Stock Exchange in January, 1918, at 47, this comparing with the high price of 70½ and the low price of 42 since 1911. The yield on the bonds if held until the final maturity date would considerably exceed 10 per cent per annum. It is stated that a portion (presumed to be £413,340) of the bonds are either owned by the Government or pledged as guaranties of credit.

(b) *External 5 per cent loan of 1911.*—In 1911 the Government of Costa Rica arranged for a loan of 35,000,000 francs with bankers of France, Germany, and the United States. This, the 5 per cent external gold loan, was contracted for at 80 per cent, the proceeds to be used to redeem the debt of the Pacific Railway of Costa Rica and a portion of the internal debt. The bonds are redeemable in 40 years from January 1, 1916, by means of a sinking fund and are secured by a first mortgage upon the revenues of the alcohol and liquor monopoly. The bankers purchasing this loan were given preferential right for a period of five years in any new financial operation of the Republic. No market quotation of this loan is available.

The principal internal bond issues of the Republic consist of a 1,200,000-colon 6 per cent loan of 1914–1925 and a 2,000,000-colon 10 per cent loan, floated in 1917. The Costa Rican debt, although fairly large, represents large expenditures for railways, sanitary improvements, local improvements, ports, etc. The European war seriously affected the revenues of the Government, but the service of the loans has been taken care of regularly and promptly.

None of the municipalities or Provinces have any funded debt, so far as can be ascertained. After the conclusion of the European war San Jose will probably arrange a bond issue to provide funds for local street improvements. The municipal slaughterhouse and its receipts, also certain public-utility revenues, are available as collateral. While a comparison of tax rates and conditions governing the levying of taxes in Latin America and the United States is impossible, it may be said that the taxpayer of San Jose does not pay to the municipality more than one-fourth of 1 per cent of the property valuation each year. In the event of this loan being negotiated, it is probable that most of the necessary supplies would be purchased in the United States.

BANKS.

At the present time banking facilities in Costa Rica are provided by three public banks (Bank of Costa Rica, Anglo-Costa Rican Bank, and Mercantile Bank), three private banks, and one agency of a foreign bank (Royal Bank of Canada). The last mentioned is highly successful. This branch of the Royal Bank of Canada is said to realize a substantial profit on loans to coffee estates secured by the crops. These loans pay from 6 to 9 per cent, and the creditor is amply protected, the laws governing these transactions being admirably suited to the situation.

In addition there was formed, following the outbreak of the war, a Government bank of issue, the International Bank of Costa Rica—an institution to have existence only during the European crisis. The shares of the three public banks named above are held locally, and the directors are Costa Ricans of high standing.

RAILWAYS.

The railways of the Republic consist of the Pacific Railway of Costa Rica and the Northern Railway of Costa Rica (with its leased line, the Costa Rica Railway). The first named, extending from

Puntarenas, on the Gulf of Nicoya (Pacific coast), via Alajuela, to San Jose (69 miles), is owned and operated by the Costa Rican Government. This railway handles a very fair amount of traffic, especially passenger traffic, but suffers from a lack of steamship tonnage calling at Puntarenas. Freight rates are reasonable, and the management is good. During 1913, 1914, and 1915 traffic handled was as follows:

Items.	1913	1914	1915
Freight handled.....metric tons <i>a</i>		76,654	67,959
Passengers carried.....number.....		232,841	208,043
Revenue.....	\$347,700	\$351,348	\$318,264
Expenses.....	\$377,476	\$331,261	\$278,397
Net profit.....	<i>b</i> \$29,776	\$20,087	\$39,867

a Metric ton=2,204.6 pounds.

b Deficit.

Expenses as shown above include expenditures made for improvement purposes and permanent betterments. The Government estimated that the revenues from the railway in 1916 would amount to \$359,200. Increased passenger traffic has led to the putting into service of additional trains.

The Northern Railway publishes no statement of earnings, it being directly owned by the United Fruit Co. This railway transported 35,921 passengers in 1915 (39,195 in 1914), as compared with 535,396 passengers carried by the Costa Rica Railway (583,918 in 1914). Local freight, exclusive of bananas, amounted to 9,445 metric tons in 1915 (17,160 tons in 1914). A fair amount of timber was also handled.

The total number of passengers carried by the Costa Rican railways in the year 1915 was 779,360, as compared with 855,954 in the year 1914. The total railway mileage in operation throughout Costa Rica, as of December 31, 1915, did not exceed 450 miles. Recent construction work has been confined to the various United Fruit Co. lines, which extensions are built solely to meet the requirements of the banana trade.

The Republic needs additional railway mileage, particularly in the States of Guanacaste and Alajuela. The possibilities of a new line have been brought to the attention of the writer. This railway would start at Puntarenas and strike northward through Guanacaste toward the Nicaraguan frontier. Connections could readily be afforded with Lake Nicaragua, and later with the Pan American line through Central America. The railway as represented to the writer would strike across the mountains, thence eastward through the little-developed northern section of the Republic, to reach eventually the United Fruit Co.'s lines in Limon. The cost of this railway would not exceed \$25,000 per mile, it is stated, and the proposed line would throw open the rich mining territory of Guanacaste and would make available for settlement and development the fine northern districts of the Republic, said to contain large amounts of hardwood and other timbers and extensive agricultural and banana areas. The bananas would find a market through the United Fruit Co. The Nicaragua connection would, it is stated, bring a fair amount of cattle traffic to the railway.

Whether such a railway would pay is problematical and would depend largely upon how the undertaking was carried out. A large portion of the country traversed would be virgin wilderness, which, however, contains sufficient wealth to assure a large amount of traffic, once developed. Construction difficulties are said to be not great. If worked by a company having sufficient capital to cut the timber, work the mineral areas, and generally explore and develop the country, this undertaking would be likely to prosper.

Including the Costa Rica Railway, the Northern Railway of Costa Rica, etc., the total railway mileage of the United Fruit Co. in Costa Rica, as of September 30, 1917, was 330, and the tramway mileage 230. Fifty-three locomotives and 949 cars were in service, and 534 additional cars were used on the tramways. The total investment of the United Fruit Co. in railway lines in Costa Rica amounted to \$2,840,268 and in tramways to \$204,479.

COSTA RICA RAILWAY.

The Costa Rica Railway was originally incorporated in 1886, to take over then existing lines in Costa Rica and to construct additional mileage. At the time of the incorporation of the company the lines were being operated by Mr. Minor C. Keith under lease from the Government, and this new arrangement was made on behalf of the holders of the external Government bonds of the Republic. The Government transferred its railways for a period of 99 years from the completion of the new lines, and conveyed to the company 800,000 acres of land in consideration of the allotment to the Government of one-third and to the bondholders of two-thirds of the company's share capital. Such of the lands as were unsold or had not been utilized in 1904 reverted to the Government. All rolling stock and supplies for construction purposes may be entered customs free.

Under date of July 1, 1905, the United Fruit Co. entered into an agreement to work the line until within two months of the final date of the lease, transferring its operation to a subsidiary, the Northern Railway of Costa Rica. The Northern Railway was to pay an annual rental for the property, this rental amounting at present to £149,100 per annum. This is the maximum amount payable, unless additional debentures up to £20,000 are issued.

The Costa Rica Railway has outstanding £1,800,000 stock, on which dividends of 2 per cent per annum have been paid during recent years. The debenture issues consist of the following:

(1) £200,000 prior mortgage 5 per cent repayable prior to 1933, through the operations of a sinking fund. Approximately £130,000 of these debentures remain outstanding.

(2) £180,000 prior mortgage debentures (second series) bearing interest at 5 per cent per annum, March and September 1 (similar date for first series), the principal being repayable by sinking fund on or before 1941. Approximately £150,000 of these debentures remain outstanding.

(3) £655,000 first mortgage 6½ per cent debentures, issued September 1, 1916, to extend maturing 6 per cent first mortgage debentures. All of these debentures remain outstanding. A cumulative sinking fund of £3,000 per annum commenced operation July 1, 1917, this sum to be used to purchase these debentures and second-mortgage

debentures (see following). The company may not pay a dividend on its stock in excess of the present rate, 2 per cent, until the sinking fund shall be equal to one-half of the first-mortgage and second-mortgage debentures for the time being outstanding. The company reserves the right to retire the debentures at 103 and interest until September, 1921; at 102 from September, 1921, until September, 1926; and thereafter at par.

(4) £600,000 $6\frac{1}{2}$ per cent second debentures, all outstanding, interest 6 per cent fixed and $\frac{1}{2}$ per cent dependent on income (see first-mortgage debentures, above).

All the above securities are listed on the London Stock Exchange. Recent quotations have been as follows:

Securities.	High price since 1911.	Price January, 1918.
Ordinary stock.....	50	25
5 per cent prior mortgage debentures.....	103	90
5 per cent prior debentures (second series).....	103	90
$6\frac{1}{2}$ per cent first-mortgage debentures.....	a 105	96
$6\frac{1}{2}$ per cent second-mortgage debentures.....	a 103	92

a These were the high prices for the 6 per cent debentures due 1916.

PUBLIC UTILITIES.

San Jose has a good water and drainage system, and telephone service is maintained there and in various other parts of the Republic. As of December 31, 1915, 34 cities and towns had electric-lighting facilities and 88 cities, towns, and villages had water supply. The water-power facilities are good and sufficient for the country's needs.

There is one tramway system in the Republic, namely, that operated by the Costa Rican Electric Light & Tramways Co. This is a British concern, its securities being quoted on the London Stock Exchange. In 1915, 1,809,823 passengers were carried. The line traverses the city and suburbs of San Jose and operates extensions to San Pedro del Mojon and Guadalupe. It is stated that this company and other public-utility properties in and about San Jose were to have been acquired by New York interests, but this transfer of control has been abandoned for the time being, at least.

The company's balance sheet as of June 30, 1917, stated that the capitalization consisted of £130,000 ordinary shares, par £1, £187,750 5 per cent first debentures (original issue £197,150, £9,400 having been redeemed through sinking fund) and £98,900 prior lien 6 per cent debentures (original issue £100,000, balance retired through sinking-fund operations).

The net earnings of the company, after charging all expenses incurred, amounted to £14,381 in 1916-17, as compared with £19,211 in 1915-16. The final result after payment of all charges was a net deficit of £3,827. The disappointing results, it was stated, were due largely to the rise in the rate of exchange, business having been well maintained, despite the general dislocation in trade on account of the war.

The sinking fund on the debentures of the Costa Rican Electric Light & Tramways Co. was suspended in 1915 until the May 1 follow-

ing the conclusion of the European war. The 5 per cent debentures were originally issued mostly at 90; they were quoted at 60 in January, 1918. The 6 per cent prior debentures sold at 91 shortly before the outbreak of the European war. They are not actively quoted. The tramway line is 10 miles in length. In 1956 it reverts to the municipality without payment. The electric-lighting plant and undertaking is to remain the property of the company in perpetuity.

A company, also British, known as the Costa Rica Markets Co., and formerly called the Costa Rica Markets & Tramway Co., formerly held a concession to operate a tramway system in the city of Cartago. This tramway undertaking was abandoned in 1898, but the company continues to operate markets both in Cartago and Heredia. The market concessions are for 50 years from 1888, at the conclusion of which period they revert to the municipality. The capitalization of this company, authorized and outstanding, consists of £60,000 in shares of £10 each, including £10,000 issued in 1900 to holders of first mortgage bonds, in satisfaction for overdue interest. There are also £44,800 (approximately) 4 per cent (formerly 7 per cent) first mortgage debentures, redeemable at par or under after surplus after bond interest; £9,700 5 per cent second mortgage debentures due 1916 (presumably extended); and £8,400 (original issue £10,000) prior lien 7 per cent debentures. The reduction in the interest rate followed the abandonment of the Cartago tramway, after the earthquake of 1898, and the 4 per cent has been maintained, though with some recent irregularity, on the first mortgage bonds. Interest on the second mortgage bonds was defaulted in 1895 and largely remains unpaid. The interest on the prior lien bonds has been paid regularly and the sinking fund maintained. Profits from the markets have varied during recent years from £1,895 in 1914-15 to £3,022 in 1913-14. There was a debit balance to profit and loss, inclusive of unpaid interest, on September 15, 1915, of £22,465. First mortgage debentures carry voting power, 10 votes to each £100.

AGRICULTURE.

The coffee plantation is the one factor around which the economic development of the Republic is built. The size and value of the coffee crop means relatively as much to Costa Rica as does the grain crop to Argentina or Russia, and has much to do with the price and stability of the exchange market. The value of coffee exported in 1914 and 1915 was \$4,666,368 and \$3,732,713, respectively. The coffee is of a very high grade. Formerly the United States purchased only a very small amount, but since the war it has taken ever-increasing quantities. The average return on investments in coffee estates covering a period of years is quite large, provided, of course, the management is good.

Banana raising as a field for the investment of capital is not generally recommended, for unless the business is handled on a very large scale and the company has other branches of enterprise there is little likelihood of profits being earned. While the production of bananas in Costa Rica does not directly benefit the country greatly other than through the revenues derived from the export duty, it nevertheless brings a fleet of excellent ships to Port Limon,

carrying large numbers of tourists who spend very substantial sums of money in the country annually.

The cultivation of cacao is increasing and will no doubt in time prove of great importance, especially in the blighted banana lands adjacent to the Northern Railway of Costa Rica.

Costa Rica is coming into prominence as a sugar country, especially the western and central Provinces. Formerly the country imported sugar, but now is exporting it in considerable quantities. The output in 1915 was 5,207 metric tons, as compared with 2,869 tons in 1913. Of the sugar raised during the year, 2,392 tons, valued at \$165,620, were exported, of which the United States and Panama took by far the greater portion. There seems no reason why sugar planting on a large scale in this country should not be profitable, as labor is reasonable—far cheaper than in Cuba—and markets are accessible.

The United Fruit Co. is by far the largest and most important concern that has invested in Costa Rica. As of September 30, 1917, that company stated the book cost of its properties in the Republic to be \$12,851,897, a sum larger than that invested in any other of the tropical countries. Lands owned were carried at a book value of \$6,855,863, houses and buildings at \$738,073, railways at \$2,840,268, cultivations at \$1,148,627, etc. The acreage improved and unimproved was as follows: Improved, 38,196 owned and 921 leased; unimproved, 202,304 owned and 4,360 leased; total, 240,500 owned and 5,281 leased. The 39,117 acres under cultivation were devoted to the following crops: 24,914 to bananas, 7,495 to cacao, 652 to coconuts, and 107 to pineapples, the remainder being mostly used for pasturage. A total of 2,737 cattle and 1,650 other animals were owned.

MINING ENTERPRISES.

The mineral resources of the Pacific slope of Costa Rica are very large. Gold has been mined at intervals since before the Spanish conquest. The value of gold exported in 1915 was \$800,294. A small amount of silver (value \$6,122) was also exported. Recently a large manganese field was discovered and numerous claims have been located. This ore body is rather remote from transportation facilities. It is of blanket formation. Many other minerals are known to exist, but development awaits the coming of additional railways.

The Costa Rican Manganese & Mining Co., of Delaware, is planning to carry on extensive mining operations in this field.

Oil has recently been discovered in Costa Rica, apparently in paying quantities. A concession to explore the oil-bearing lands, which are located in San Jose, Guanacaste, and Alajuela, was recently given to an American syndicate (the Sinclair Gulf Corporation). A subsidiary company will be formed to exploit fully the possibilities of the field.

The principal mineral is gold and the principal mining fields are those of Abangarez, La Union, Aguacate, and Montezuma.

The Abangarez Gold Fields of Costa Rica was incorporated in 1899 and acquired various mining properties in the Republic, including those of the Guanacaste Syndicate, the Guacimal Exploration Co., and the Costa Rica Esperanza Mining Co. A power plant on the Guacimal River, a mill, an aerial tramway, etc., are owned.

As of May 1, 1915, the company, which is largely controlled by interests identified with the United Fruit Co., entered into an agreement with Mr. J. N. Popham by which the latter undertook to operate the property on a basis of 10 per cent of the net profits over and above operating expenses and the cost of current development work necessary to open up new ore reserves.

The capitalization of the company as of December 31, 1916, consisted of \$3,880,000 common stock, \$1,000,000 preferred stock, 6 per cent cumulative, and two issues of 6 per cent notes, \$374,000 and \$476,000, respectively, which matured May 1, 1916, and the principal of which had not been paid off to August, 1917. The par value of the shares is \$25. About 42 per cent in back dividends on the preferred stock remains due and unpaid.

The earnings of the company over a period of years have been as follows:

Years.	Gross revenues.	Net income after interest charges.	Tons of ore crushed and milled.
1910.....	\$895,234	+\$267,047	31,317
1911.....	982,586	+ 188,552	42,514
1912.....	606,782	- 175,463	50,011
1913.....	579,236	- 22,040	69,346
1914.....	198,847	- 174,589	37,742
1915.....	197,619	- 87,789	25,262
1916.....	670,574	+ 165,389	50,221

The company had, as of December 31, 1916, \$282,519 cash and other current assets. There were \$1,333,426 notes, including those overdue and unpaid, and current liabilities to the amount of \$158,063. It is stated that during the early months of 1917 the outstanding demand loans have been reduced by \$158,000. A total of \$98,432 was expended during 1916 for betterments and underground development. Future prospects were said to show promise.

The Montezuma mine is under American management and control. It is said to be showing good profits. The mine was discovered before the arrival of Europeans in Costa Rica.

Although copper is not mined at present in Costa Rica in commercial quantities, it is known to exist, probably in sufficiently large veins to warrant exploitation. The Las Concavas mine, opened centuries ago, was a moderate producer for a considerable period, but at last accounts was idle. Various other outcrops of the ore have been located, and some were mined in a small way before the Spanish conquest.

MANUFACTURING.

Costa Rica is not a manufacturing country of importance. Coffee-drying establishments, small sugar mills, a liquor distillery (national), and a few tobacco factories are most worthy of notice. There are in addition 8 ice factories, 1 brewery, 29 iron foundries and shops, and 62 steam sawmills. There are in all 4,678 manufacturing and commercial establishments. Of these, 2,692 are under Costa Rican control, 518 owned by Chinese, 438 by Spanish subjects, 254

by subjects of the British Empire, 168 by Italians, and 105 by citizens of the United States. There are doubtless numerous opportunities in this field, especially as the country is certain to attract immigration in the not distant future. These opportunities are, however, confined for the present to industrial enterprises not requiring extensive capital.

FOREIGN INVESTMENTS IN COSTA RICA.

Taken as a whole, Costa Rica might be spoken of as an attractive field for investment. The country, away from the railways, is little developed and in many parts is wonderfully fertile. Great Britain and the United States have the largest investments at stake, Great Britain holding approximately \$8,000,000 Government bonds, as well as shares and debentures of the Costa Rica Railway, the Costa Rica Electric Light & Tramway Co., Costa Rica Markets, etc. The United States has invested in the field a sum probably about equal to that which Great Britain has placed there. The principal American concern is, of course, the United Fruit Co. There is also considerable American capital in mining and other enterprises. Probably our interests have \$20,000,000 at stake in the Republic. France owns about \$7,000,000 bonds and presumably has some minor investments. Germany is thought to possess about \$1,500,000 of the Government bonds and has placed sums in the coffee industry. Canada has its banking agency. Presumably most of the other capital has been raised locally.

There are few countries in the Americas more advanced and progressive than Costa Rica, and once it is able to obtain additional immigration and more capital for development its future is assured.

GUATEMALA.

INTRODUCTION.

Guatemala, the most northerly of the Central American Republics, is second in area and first in the number of inhabitants among the countries of Central America. Its estimated area is 46,774 square miles and its population, according to a recent estimate, 2,119,165. The Republic borders on the Pacific Ocean, the Caribbean Sea, Mexico, Honduras, Salvador, and British Honduras. Its total coast line is 283 miles, and it has three ports of commercial importance, Puerto Barrios and Livingston, on the Caribbean Sea, and San Jose, on the Pacific Ocean. A large portion of the country, particularly the central and western part, are extremely mountainous, a number of the peaks being volcanic. The climate varies from the tropical heat of the coastal lands to the cool, bracing air of the interior highlands. The rainfall, extremely heavy on the coast, lessens as the interior is reached, averaging less than 33 inches per annum at Guatemala City.

As a field for investment, Guatemala has attracted a fair amount of foreign capital. The Guatemalan Government stated in 1915 that more than 50,000,000 marks of German capital had been invested in coffee plantations, public utilities, banking institutions, etc., while British investments in Government bonds, railway securities, coffee plantations, etc., amounted to possibly \$25,000,000 to \$30,000,000. The principal American investments are held by or in the interest of the United Fruit Co., the total investments of which were stated to amount to \$4,751,288 as of December 31, 1916. Most of the common stock and a portion of the other securities of the International Railways of Central America are also held by interests identified with the United Fruit Co. The total American capital invested probably amounts to \$12,000,000.

The capital and chief city of the Republic is Guatemala City, its population numbering probably 115,000 to 120,000. There are several other more or less important cities, among them Coban, Escuintla, Mazatenango, and Quezaltenango. A large part of the population of these cities and of the country away from the Caribbean coast is partly or wholly Indian.

GOVERNMENT LOANS AND FINANCES.

The external debt of Guatemala amounted, at last accounts, to £1,468,060. This represents the outstanding balance of £1,600,000 bonds issued in 1895 to unify the external and internal debts of the Republic, amounting at that time to £890,300 and £964,144, respectively. The rate of conversion was £75 of the new bonds for £80 old external bonds and £75 of the new bonds for £100 old internal bonds, with coupons in arrears. A noncumulative sinking fund of £15,000 per annum was to retire the issue, gradually, and an export tax on

coffee was assigned as security for the bonds. The present rate of tax on coffee is \$1.50 gold per quintal.

For a period of years the Republic experienced difficulty in making payments of interest on the bonds, but since 1913 payments have been made regularly, despite the falling off in governmental income owing to the war's effects on the customs duties. The financial position and credit of the Republic have shown considerable improvement. The sinking-fund operations are expected to be resumed commencing July, 1917, and deferred certificates will, it is expected, be issued to cover all interest payments in arrears. The methods that will be followed in paying off these deferred certificates had not been announced at the time this report was written. Guatemala has made a very creditable showing in handling its finances, and in meeting the service on its external loans has usually advanced the necessary funds to its representatives abroad two or three months before the date on which due, thus assuring prompt payment.

A recent statement placed the internal debt of Guatemala at £186,929. This was largely in the form of contracts due the various banks, including approximately 45,000,000 paper pesos due the Banco de Guatemala and approximately 30,000,000 paper pesos due the Banco de Occidente. Internal bonds outstanding amounted to 3,667,000 paper pesos and interest on bonds in circulation amounted to 7,154,053 paper pesos. The remainder of the internal debt was in the form of obligations due the railways, notes of the bankers' committee, floating debt, etc. Gold liabilities were in the form of \$343,178 "Sundry Departments of State," and \$584,802 due the Central Railway (International Railways of Central America).

The general estimates of administrative expenditures during the fiscal year July 1, 1917, to June 30, 1918, were 64,780,957 paper pesos, as compared with total expenditures during 1916 amounting to 51,897,633 paper pesos. The principal items in the budget for 1917-18 were: Public credit, 23,139,138 paper pesos; War Department, 10,310,708 pesos; Education, 7,704,370 pesos; Interior and Justice, 7,048,867 pesos; Finance, 4,770,792 pesos; and Foreign Affairs, 3,845,346 pesos.

The highest recorded price since 1911 on the London Stock Exchange for the Guatemala external 4 per cent bonds was 59½, this comparing with an approximate price of 42 in January, 1918.

BANKS.

There are several banks of importance in Guatemala; these will be discussed briefly:

The American Bank of Guatemala dates from the year 1895, when it was founded with a capitalization of 1,000,000 silver pesos (1 silver peso equal to \$0.363 United States gold), the shares having a par value of \$1,000 each. Since its incorporation the American Bank has increased its capitalization from time to time; the present total is 4,000,000 silver pesos, all of the increased capital being issued at a substantial premium. The 4,000 shares are held by more than 400 persons and firms, the average holding being between 5 and 20 shares; the largest shareholder is the Colombian Bank, with 132 shares in its possession. The reserve funds of the bank are about equal to its capitalization. The annual dividend rate is very large,

frequently reaching 40 per cent. The bank is located at Guatemala City.

The Bank of Guatemala was founded early in 1905 by a group of Guatemalan and foreign capitalists and received from the Government valuable concessions and exemption from taxes. The authorized capitalization of the bank is 10,000,000 silver pesos, of which 2,500,000 pesos stock is outstanding. The par value of the shares is 1,000 silver pesos each. Not long after the bank began operations the shares were quoted at a premium of 50 per cent, from which point they soon rose to more than twice par. The bank has a reserve and sinking fund equal to more than twice its capitalization. It collects the funds derived from the import tax on general merchandise and the export tax on coffee and other products, such as timber, etc. Among its founders was Gen. Barrios, then President of the Republic. The head office of the bank is at Guatemala City; there is a branch at Escuintla, and there are agencies throughout the Republic.

The Occidental (Western) Bank was founded in 1881 and has its headquarters at Quezaltenango. Its authorized capitalization is 2,000,000 silver pesos, of which approximately 1,650,000 silver pesos is paid in. The bank occupies a strong position, having substantial reserves on hand. In addition to its main office, there is a branch at Guatemala City and agencies at Retalhuleu, San Felipe, Mazatenango, and Cotapeque.

The Colombian Bank was founded in 1878 with Colombian capital and by Colombian citizens. The institution holds a small interest in the shares of the American Bank of Guatemala. The head office is at Guatemala City.

The International Bank of Guatemala is the oldest institution of its kind in the Republic, having been founded in 1877. Its paid-up capitalization is 2,000,000 silver pesos.

RAILWAYS.

The only important railway system in Guatemala is that operated by the International Railways of Central America, incorporated in 1912 as a consolidation of the Guatemala Central Railway, the Guatemala Railway, the Occidental Railway and the Ocos Railway. The company's lines as they now exist extend from Puerto Barrios, the most important Caribbean port of the Republic, to Guatemala City (194 miles), thence to San Jose on the Pacific Ocean (74 miles), with a branch from Santa Maria, through extensive coffee districts, to Mazatenango (60 miles) and thence to the Pacific port of Champerico (42 miles). An extension also runs from Las Cruces to the Mexican frontier (54 miles), and additional mileage is in operation in the Republic of Salvador (see p. 446).

The section of the system extending from Puerto Barrios to Guatemala City was projected a number of years ago by the late Rufino Barrios, then President of the Republic. Work on the undertaking was begun in 1892, and by the end of 1894 the line had been constructed from the coast to El Rancho, 129 miles. At this point the Government, owing to lack of funds, was compelled to suspend construction and the property was leased to a private company. Business did not come up to expectations, and the company, in order

to meet operating expenses, had to run the road without making any charges for maintenance expenses. The result was that the entire line was allowed to fall into a deplorable state of disrepair, causing the operation of trains to be practically suspended. A slow passenger-and-mail train was run about once a week in each direction, provided the track was not partly washed away or bridges down. In the year 1902 plans were laid to reconstruct the line and to continue it to Guatemala City. The building of the new mileage required some heavy engineering, the country traversed being extremely mountainous. This section of the line abounds in wide curves, cuts, and fills, and there are a number of tunnels. The first train was run from the Caribbean coast to the capital in 1908.

The International Railways of Central America is now operated in four divisions, as follows:

Divisions.	Mileage.	Gross earnings.		Operating expenses.	
		1915	1916	1915	1916
Atlantic Division.....	195	\$1,293,314	\$1,446,151	\$607,038	\$589,469
Central Division.....	139	742,369	981,115	470,776	450,863
Ocos Division.....	12	44,373	9,188	36,061	27,755
Salvador Division.....	99	123,882	139,166	112,288	117,732
Total.....	445	2,203,938	2,575,620	1,226,163	1,185,819

In 1915 the net revenues from operations were \$977,775; the total net income after taxes had been deducted and other income added (operating income) was \$1,013,140; interest, discount, etc., amounted to \$596,471; and the net income (surplus) was \$416,669.

In 1916 the net revenues from operations were \$1,389,801; the total net income after taxes had been deducted and other income added (operating income) was \$1,418,913; interest, discount, etc., amounted to \$587,700; and the net income (surplus) was \$831,213.

Including the operations of the Occidental Railway (50 miles) and the Pan American Extension from Las Cruces (41 miles), gross receipts in 1916 totaled \$2,825,295 and in 1915 \$2,406,087.

The total mileage completed by the International Railways of Central America, as of December 31, 1916, was 592, as compared with 588 miles as of December 31, 1915; the mileage under construction at the beginning of 1917 was 31; and the mileage still to be built was 277. The unconstructed mileage is to be located 55 miles in Guatemala, 134 miles in Salvador, and 88 miles in Honduras.

The total capitalization of the company consists of \$30,000,000 common stock, \$10,000,000 5 per cent preferred stock, and \$10,506,666 bonds. The preferred stock is cumulative and received dividends at the rate of 5 per cent per annum from August, 1912, to August, 1915, inclusive. In the event of the common stock receiving more than 5 per cent in any year, the preferred stock is entitled to a similar dividend. No dividends have as yet been paid on the common stock. The bond issues consist of \$2,379,000 6 per cent bonds of the Guatemala Central Railway (due 1931), £1,000,000 first mortgage 5 per cent (due 1972), and \$3,621,000 secured by a first mortgage on 104 miles and by a second mortgage on the remainder of the mileage.

The Southern Pacific Co. owns \$1,788,000 of the Guatemala Central 6 per cent bonds.

Quotations for the company's securities follow:

Securities.	High price since issue.	Price January, 1918.
Common stock.....	23	10
Preferred stock.....	72	51
First mortgage 5 per cent bonds.....	87	70

The stocks of the company are listed on the London Stock Exchange and in New Orleans.

It is presumed that eventually the system will be carried through Nicaragua, Costa Rica, and Panama, giving an all-rail route between the United States, Mexico, Guatemala, Salvador, Honduras, Nicaragua, Costa Rica, Panama, and the Canal Zone.

The International Railways of Central America owned, as of December 31, 1916, 7,500 shares of the common stock and 190 shares of the preferred stock of the Guatemala Tramway, Light & Power Co., the shares being carried at a cost valuation of \$14,000. As of the same date the railway company had advanced to the public-utility company \$231,166. In addition, the railway company owned, as of the above-mentioned date, \$77,160 shares of the Guatemala Marble & Granite Co.

The United Fruit Co., as of September 30, 1917, operated 92 miles of railway in the Republic of Guatemala, as compared with 52 miles operated in 1915. The company also operated 147 miles of tramways, as compared with 151 miles in 1915. Locomotives in service were 10 in number, and 35 cars were in use on the railways and 370 on the tramways. The cost of railway lines in Guatemala owned by the United Fruit Co., as of September 30, 1916, totaled \$1,007,778 and of tramways \$237,512. While these lines are built primarily to handle the banana trade of the company, they nevertheless do a limited business as common carriers.

Guatemala is a rich country, and further development along railway lines is sure to take place in the not distant future. A line is destined at some future date to enter the Department of Peten, running from British Honduras. This line will have its Guatemalan terminus at Flores, on Lake San Andres de Peten, and will extend through the finest hardwood district in Central America. It will cross the boundary at Carbutts Falls and will reach the Caribbean Sea at the port of Belize. Peten is the largest in area among the Departments of Guatemala, despite which fact its population is the smallest, not exceeding (at most) 8,000.

The Verapaz Railway is a 29-mile line, extending from Panzos to Panacajche, and was completed in the year 1898. Panzos is a city on the banks of the River Polochic, and is in steamship communication with the port of Livingston, on the Caribbean Sea (weekly service is maintained). The railway is an outlet for a large section of the important Department of Alta Verapaz, which produces coffee in large quantities, as well as cacao, sarsaparilla, va-

nilla, cotton, etc. This section of the Republic is rich also in all classes of lumber and, in the years before the European war, exported large quantities of valuable orchids and rare plants.

The present railway mileage of Guatemala is approximately 575, not including the tramways operated by the United Fruit Co., the Urban (horse) Railway, and light railways to coffee plantations.

PUBLIC UTILITIES.

Public-utility development in Guatemala has made moderate progress. The cities, except Guatemala City, are comparatively small and consequently their needs are more or less limited. The capital is the only city possessing tramways or likely to develop sufficient traffic to support them. The system in Guatemala City is operated by mule service, although plans have been laid to modernize the line by electrifying it. During 1915 the Urban Street Railway of Guatemala City carried 2,984,950 passengers; 9.24 miles of lines are operated. There is also an interurban system operated by steam.

The International Railways of Central America owns 7,500 common and 190 preferred shares of the Guatemala Tramway, Light & Power Co., carried at a valuation of \$14,000. The railway company has advanced to the public-utility company the sum of \$231,166.

German capital is invested in the electric lighting system of Guatemala City.

Guatemala City receives its water supply from the aqueducts of Pinula and Mixco and the Rivers Acatan and Minas. The aqueduct of Pinula runs north and south, a distance of about 6 miles, and is well constructed; the water from Mixco is brought to the city by means of a masonry conduit about 9 miles in length, and it runs through two hills by means of tunnels. The daily capacity of these two sources of supply is about 1,325,000 gallons. The River Acatan has its source to the southwest of the city and its supply is somewhat more than one-half of that furnished by Pinula and Mixco. The water from the Minas River is obtained by means of a 15-mile pipe line, the construction of which was financed by the International Bank of Guatemala, the supply amounting to about 600,000 gallons daily.

The water supply of the city remains insufficient, despite the efforts made to increase it, and plans have been considered for the laying out of a new and comprehensive system to cost \$1,500,000 or more. The source of this supply would probably be the River Teocinte, and the distance required to carry the water to the city would be about 20 miles. Some engineering difficulties would be encountered. Plans have also been considered for the laying out of a new and enlarged sewerage system for the city, the estimated cost of this undertaking to be approximately \$1,000,000.

Other cities and towns in Guatemala have water-supply systems and there are electric lighting plants and services in San Jose, Momostenango (population said to be 25,000), Huehuetenango (the Huehuetenango Electric Co.), Quezaltenango, Totonicapan (municipally owned service inaugurated in 1911), San Marcos (population 5,000), Puerto Barrios, and several other towns and cities. There are also telegraph and telephone services, the latter in operation in

Guatemala City and in a number of smaller cities and towns. The telephone systems were constructed as private enterprises, while the telegraph lines are mostly under State control. Upward of 1,000,000 private telegrams are handled annually.

MINING ENTERPRISES.

Guatemala possesses a considerable amount of mineral wealth, despite which fact, however, but little actual mining is being carried on. The extremely rugged nature of the country and the lack of railways and roads account for this lack of development.

There were small copper mines in Guatemala during the colonial period, and work was carried on at as early a date as the seventeenth century. Small copper veins have been located in the western part of the Department of Baja Verapaz, near the towns of Rabinal and Cubulco. This is about in the center of the Republic. In the Department of Chiquimula, near the boundary with Honduras and Salvador, have been located copper deposits said to average from 5 to 20 per cent copper. These deposits are not worked, but will be available in the event of the construction of the projected and partly surveyed railway to extend from Zacapa, on the main line of the International Railways of Central America, to Santa Ana, Salvador. Other copper deposits are known to exist in this now isolated Department. In the Department of Huehuetenango, on the northwestern frontier, copper has also been located. The find was made near Chiantla, where there are also silver-lead mines. Chiantla is located just north of Huehuetenango, the capital of the Department. No railway lines are near at hand, and communication with the outside world is somewhat difficult. In this Department silver-lead mining has been carried on since the early colonial period, although at the present time operations are on a very small scale.

Approximately 70 years ago a company controlled in England and France acquired rich mining properties in the Department of Chiquimula and carried out extensive operations, obtaining nearly 50,000,000 ounces of silver, before the supply of the marketable grade of the mineral was exhausted. During the period of its greatest prosperity, the mine is said to have been the greatest silver producer in Central America. This distinction is held at present by the New York & Honduras Rosario Mining Co., of Honduras.

A considerable amount of placer gold mining is being carried on, mostly by individuals. The largest and most important gold placer property is the "Las Quebradas Gold Mines," situated some 30 miles from Puerto Barrios, on the Caribbean coast. The mines are located on the Bobos River, in the foothills of the Merendon Mountains, at an altitude of about 700 feet. The near-by town of Las Quebradas consists almost wholly of the workpeople and their families, having a population of about 250. The property is about 8 miles from Morales, on the Puerto Barrios-Guatemala City section of the International Railways of Central America, and is practically connected by a spur of one of the United Fruit Co.'s banana lines. The area of this property is about 2,000 acres, and the charter is in perpetuity. The average return per cubic meter varies from 25 to 50 cents. Excellent water power is obtainable from the falls of the Bobos River,

three miles above the mining property. For a long time the mines were the property of an American firm, Potts & Knight, but it is understood that negotiations were under way a short time ago whereby a syndicate would take over the property and develop it on an even more extensive scale than hitherto.

The total number of mines that have been declared or registered is approximately 135. Of this total probably not more than half a dozen are worked. The mining laws of the Republic are extremely liberal, a concession being necessary only in the event that machinery is to be installed. A mining claim covers approximately 25 acres of surface and allows the holder to mine as far beneath the surface as desired.

There are evidences that a substantial amount of petroleum exists in the Republic. The Government has decreed itself in exclusive control of the oil deposits, although privileges will be granted whereby private interests will be able to lease oil lands over a term of years.

OPPORTUNITIES IN THE DEPARTMENT OF PETEN.

The Department of Peten, which comprises the most northerly section of Guatemala, has an area of about 39,500 square kilometers (15,250 square miles), equal to about one-third the total area of the Republic. Its population hardly exceeds 8,000 and it has not been wholly explored. The Department is known to be one of the greatest sources of undeveloped forest wealth in Central America. In the north of the Department are vast areas of campeche, a very valuable dye-wood, the existing supply being almost unlimited. Its exploitation, which has thus far been hardly attempted, will some day prove a source of great revenue to those willing to undergo the hardships inevitable in such a district. In this section of Peten there also exist a very large number of "chicozapote" trees, from whose sap the chicle of commerce is made. These trees grow to a large size and form dense forests, facilitating their exploitation. A considerable amount of this gum is extracted annually, but the supply is still far from being exhausted.

Henequen, to-day the chief source of wealth of the Yucatan section of Mexico, is destined in the not distant future to be cultivated and produced in very large quantities in this section. Practically no henequen is being exported from Peten at the present time. The profile of the northern district is generally level and in some sections swampy. The climate is generally more or less torrid and in some parts rather unhealthy.

The eastern section of Peten, bounded by British Honduras, is extremely rich in forest products—mahogany, cedar, caracolillo (a tree similar to mahogany), a wide variety of cabinet woods, rubber, chicle, sarsaparilla, and numerous dye, tanning, and medicinal trees. The climate in this district is torrid, the rainfall heavy, and the population sparse. It is through this section that a railway starting from Belize, British Honduras, is likely some day to find its way. It has been pointed out that this railway would develop in the course of time a very large traffic in forest products and would prove the eventual means of developing the Department.

The Meridional Region, or mountain district, is far more temperate in climate, because of the generally higher level of the country. This region is largely covered with immense forests of hardwood, dyewood, and other kinds of trees. There are several important rivers in this district, some of them being navigable during the rainy season.

In the central section are located Flores, San Andres, San Benito, La Libertad, San Jose, and most of the other small cities and towns of the Department. Timber is not so plentiful here, the country being covered with long grasses of considerable value for grazing purposes; it might also be important as an agricultural center, since coffee, henequen, sugar, and all kinds of cereals grow readily. There are no navigable rivers in this section, the principal body of water being Lago San Andres; on an island in this lake is Flores, the capital of the Department. There are also a number of small lagoons.

The western section of the Department comprises the basin of the Usamacinta River, one of the largest and most copious streams in Central America. The region is largely covered with forests, although there are some parts of it highly suitable for cattle grazing.

The entire Department of Peten exported, during 1913, 387,837 pounds of chicle, valued at \$142,108 United States currency; 186,626 tons of hardwood, valued at \$167,000; about 27,000 pounds of rubber, and a very small amount of other products. Although many thousands of cattle might be maintained in the Department, if it were within reach of the world's markets, to-day only about 2,000 animals are to be found. As previously stated, the entire future of the Department, which bids fair to become in time the chief source of wealth of the Republic, is dependent upon the establishment of means of communication with the outside world. The fine hardwood trees, being sinkable, are obtainable at the present time only at great cost and with considerable difficulty. Labor is also scarce, as is evidenced by the small population. The Department's resources will not always remain undeveloped and therefore are worthy of more than passing notice. Opportunities will present themselves for the establishment of sawmills and lumber mills and for the general development of the forest products, and the comparative nearness of the territory to the United States will insure transportation at moderate cost.

FOREST RESOURCES.

The forest wealth of the Department of Peten has been discussed at length in the several preceding paragraphs. The timber areas of the Republic are by no means confined to Peten but are distributed far and wide. The entire lumber and hardwood industry is merely in its infancy, and development will of necessity be slow. Transportation means are extremely limited in most of the forest-covered districts, and the methods followed in cutting and sawing the timber are not always the most modern.

STOCK RAISING.

Guatemala contains vast areas of good cattle-grazing lands and there is every reason to believe that the cattle industry will in time become important. Increasing attention is being given to the introduction of blooded stock. Refrigeration plants are being established and everything connected with cattle raising is being carried on in a more modern way. The number of cattle in the Republic at the beginning of 1914 was estimated at 556,843; the total to-day is probably 650,000. In 1914 there were, in addition to the cattle, about 64,000 horses, 515,000 sheep, 33,000 mules, 190,000 hogs, and 11,000 goats. The Government has not heretofore encouraged the exportation of cattle, although there has been a good business in hides. In the past most of the cattle raising in the more northerly Departments has been carried on along the lines followed in bygone days in the United States and at present on the plains of Western and South Australia, the cattle being allowed to range freely over open and unfenced areas.

AGRICULTURAL PRODUCTS.

Coffee is the principal product of Guatemala and normally forms more than five-sixths of the nation's exports. A very large part of the Pacific slope and two or three of the Departments on the Atlantic side of the Republic are mainly given up to coffee plantations. According to a statement of United States Consul Lupton, there were, at the close of 1913, 2,079 coffee plantations, owned as follows:

Nationality.	Number of plantations.	Production in quintals of 101 pounds.	Nationality.	Number of plantations.	Production in quintals of 101 pounds.	Nationality.	Number of plantations.	Production in quintals of 101 pounds.
Guatemalan.....	1,657	525,356	Spanish.....	84	12,651	Salvadorean....	11	2,255
German.....	170	358,353	French.....	21	1,119	Swiss.....	9	14,185
Austrian.....	4	630	Honduran.....	7	6,508	Mixed companies.....	6	12,920
Belgian.....	0	5,018	Italian.....	19	15,380			
Colombian.....	7	1,265	English.....	20	12,046			
Costa Rican.....	2	1,008	Mexican.....	29	700		2,079	1,046,236
Chinese.....	1	15	Nicaraguan.....	5	140			
Chilean.....	2	57,402	American.....	16	19,285			

There is in the Republic a Banco Agrícola Hipotecario, with head offices at Guatemala City. This Mortgage Bank makes loans on coffee plantations, and the banks in general make advances on coffee crops.

The total coffee production of Guatemala for the year 1913 was 1,177,298 quintals, of which 875,337 quintals was exported. The indications are that the coffee industry for many years to come will occupy first place among the various industries of the Republic.

The United Fruit Co. has for some years occupied the most important place in the banana industry. A large part of eastern Guatemala is suitable for the growth of the fruit. The United Fruit Co. owns in this part of the Republic 25,549 acres of improved and 114,444 acres of unimproved land and leases 1,773 acres of improved

and 65,619 acres of unimproved land. Of the improved land, 25,841 acres are cultivated for bananas. The total value of the United Fruit Co.'s properties in Guatemala was stated, as of September 30, 1916, to amount to \$4,751,288, as compared with \$4,949,041 in 1915. The company, occupying by far the most important position among the banana producers of Guatemala and other parts of Central America, is able to produce at a very much lower cost than independent growers. There are, however, a number of independent plantations, the production of a number of these being sold to the United Fruit Co.

The sugar industry in Guatemala is likely in time to become of considerable importance. Exports of various grades of the product are increasing, and there is plenty of land available for the raising of much larger crops. A few small mills and refineries exist. Before the war a very large part of the sugar was shipped to the markets of Europe, this sugar being mostly of a somewhat low grade. There is plenty of opportunity for the introduction of more up-to-date methods and more modern machinery.

Many varieties of cereal crops grow readily in Guatemala.

INDUSTRIAL AND MANUFACTURING ACTIVITIES.

It is hardly necessary to say that progress along industrial and manufacturing lines has been decidedly slow. Primarily agriculturists, the inhabitants have been slow to take up manufacturing, although progress along certain lines has been noted. There are a few sugar mills and refineries, several small tanneries, and a shoe factory operated by steam power; this last factory also makes envelopes and stationery as a side line. Two fair-sized breweries have been established, one in Guatemala City and the other in Quezaltenango, the former being locally owned. A number of cabinet works, tobacco, soap, candle, mineral and soda water, and other factories are found. The Cantel Cotton Mills at Quezaltenango do a very substantial business, the company manufacturing a variety of cotton goods and thread. This company raises part of the cotton it uses, but buys by far the larger share from the United States.

PRESENT OUTLOOK.

In conclusion the writer desires to quote from "Central America as an Export Field," by Garrard Harris, special agent of the Bureau of Foreign and Domestic Commerce:

It is evident that the time is ripe for investment in Guatemala. At the close of hostilities in Europe loans will be called on many of the coffee and sugar properties. It is likely that many of these will be sold at very low prices. There will be a general demand for money—at high interest—with which to liquidate European indebtedness.

The country is in good condition. The laws are liberal and well administered, and the nation has made great progress in the last 15 years. Of this progress the people, who are very patriotic, are justly proud.

HONDURAS.

INTRODUCTION.

Honduras, with an area slightly in excess of 45,000 square miles and a population of approximately 600,000, is bounded by the Republics of Guatemala, Salvador, and Nicaragua and by the Caribbean Sea and the Pacific Ocean (Gulf of Fonseca).

The Republic has been somewhat backward in its development, a fact largely accounted for by the almost absolute lack of internal communication. Through the central portions of the country nothing but the roughest trails exist, the pack mule being practically the only freight carrier. Tegucigalpa, the capital (population about 28,000), is without rail communication of any kind, the trip from that city to Puerto Cortes, the only accessible Caribbean port, taking upward of two weeks, with hardly a hotel available en route. The city is readily accessible only via the port of Amapala on the Gulf of Fonseca.

Such foreign investments as have been made in Honduras during recent years have, in general, turned out quite well; most of the invested capital has been utilized in the development of banana plantations and for mining purposes.

GOVERNMENT LOANS AND FINANCES.

The Republic of Honduras is to-day shouldering a national debt far beyond its resources, interest on which is neither earned nor paid. The responsibility for this debt can not be placed on those who have ruled the country's destiny during the present day and generation, but was forced on the nation largely through circumstances beyond its control.

The financial condition of Honduras is the result of the attempted construction of an "Interoceanic" railway from Puerto Cortes on the Caribbean Sea to Amapala Bay on the Pacific Coast. The scheme had its origin shortly after the discovery of gold in California, and at about the date of the construction of the Panama Railroad. It was largely the idea of Mr. E. G. Squire, still famous for his books on Latin America. Mr. Squire formed a company to carry out the enterprise, but met with great opposition on the part of the owners of the Panama Railroad. Finally in 1858 some survey work was done under the direction of Gen. William W. Wright, an American, the cost being approximately \$400,000. The length of the line as located was to have been about 250 miles. The outbreak of the Civil War in the United States, however, brought about the collapse of the company and ended Mr. Squire's connection with the enterprise.

In the year 1867 the Government of Honduras, following extended negotiations with certain contractors, gave a concession for the con-

struction of the railway, issuing £1,000,000 10 per cent bonds, which were offered publicly in England and on the Continent of Europe by Messrs. Bischoffsheim & Goldschmidt at 80 per cent. The Government agreed to provide an annuity of £140,000 during the years 1870 to 1884, inclusive, also promising the subscribers one-half of the railway profits for the years 1885 to 1899, inclusive.

Prior to the marketing of the above bond issue, the debt of the Republic was £90,000, representing a loan dated 1867, bearing interest at 5 per cent per annum. These bonds had been issued largely to liquidate this Republic's share of the debt of the former Central American Federation dissolved in 1822. Certain floating obligations of the nation were also provided for by the loan, thus clearing up all of the unpaid principal and interest on debts previously contracted.

In 1869 Messrs. Dreyfus & Co., of Paris, sold for the account of Honduras £2,490,108 bonds, bearing interest at the rate of $6\frac{3}{4}$ per cent. These bonds, which were publicly offered at 75 per cent, were, like the bond issue of 1869, brought out to provide funds for the construction of the railway, and were secured on the railway property and on the nation's forest domains. Seventeen years was to have been the life of the issue, the bonds being retirable through a sinking fund.

Finding that the European investing public was in the mood for the purchase of Government bonds yielding fabulous returns, the contractors prevailed upon Honduran authorities to authorize another loan, this time for the sum of £2,500,000. The bonds were offered in London (year 1870) at 80 per cent and bore interest at 10 per cent. As an additional attraction it was agreed that the bonds would be paid off at par in 34 semiannual drawings. The designated security for the loan was the railway, its revenues, and the produce of State Domain. Messrs. Bischoffsheim & Goldschmidt were the bankers, acting for the account of Mr. C. J. Lefevre.

Early in the year 1873 the interest on the various loans, which until that time had been paid out of principal, was defaulted. A total of 57 miles of the line had been completed at a cost of probably not more than \$1,500,000. To cover the cost of the construction of this mileage a debt of £5,990,108 had been contracted. Sinking-fund operations had reduced the total to £5,398,570. No interest has since been paid on these bonds or on the £90,000 bonds of 1867, and the total debt, with interest accrued to January, 1917, amounts to approximately £26,000,000.

To tell the story of the numerous attempts that have been made by both Government and bondholders to effect a settlement of this debt would require a volume. The railway remained in an uncompleted state and was allowed to fall into a deplorable condition. A bridge that had been swung across the Chamelicon River collapsed, rendering about 20 miles of road useless. About a dozen years elapsed before this bridge was replaced, and it was not until several years ago that the line was put in fair order. Recently a short extension was completed, carrying the line a few miles farther into the interior.

While admittedly this railway will no longer be of great value as an "interoceanic" route, it is stated that sufficient local and export business could be developed to assure the success of the extension across the Republic. Access would be provided to various cattle lands,

to the mineral wealth of the country, and to the centers of population. There is no question that Honduras has vast undeveloped resources. The 10 per cent bonds of 1867 and 1870 are quoted on the London Stock Exchange at about 5 per cent.

According to statistics of the Government, the public debt of Honduras, other than the old railway loans, amounted, as of January 1, 1916, to 4,165,475 pesos (1 peso=\$0.3537 United States currency at normal exchange). This figure compares with 4,877,894 pesos as of June 30, 1914, a decrease of 712,419 pesos, and with 5,747,743 pesos in 1913.

At the First Pan American Financial Conference held in Washington May 24 to 29, 1915, suggestions were made on behalf of the Government of Honduras looking toward the settlement of the railway loans. Certain export duties, it was proposed, would be increased, and other methods adopted to augment the present small national revenue of the Republic. Thus far no arrangements have been made along the lines suggested. The financial condition of the Republic is, however, steadily improving, and hopes are entertained for a satisfactory solution of its problems.

None of the Departments or municipalities have, so far as is known, any bonds outstanding in the hands of the public. Such improvements as have been carried out have generally been financed by the National Government. Direct taxation on property is not usually resorted to as a means of raising revenues, and the financial systems in use throughout the Republic are wholly different from those of the United States. A few of the municipalities are supposed to have small floating debts, mostly due the Government.

BANKS.

There are three banks of issue in Honduras, the Banco de Honduras, Banco de Atlantida, and Banco de Comercio. The first-named bank has its headquarters in Tegucigalpa and is said to have a capitalization of 417,500 pesos and bank notes outstanding to the amount of 505,000 pesos. The Banco de Atlantida is located at Ceiba and is the principal banking institution for the banana planters and the merchants of that locality. Its capitalization is \$250,000 United States currency (\$500,000 authorized), and it has notes in circulation to the amount of 236,000 pesos. The Banco de Comercio is located at Tegucigalpa; its capitalization is 500,000 pesos and its note circulation 44,000 pesos. These banks may issue paper to the amount of 200 per cent of their outstanding stock, subject to a silver reserve or deposit of 50 per cent. Banking laws are practically nonexistent, the National Commercial Code governing banking operations. Mortgages and short-time loans normally carry interest at the rates of 10 to 12 per cent and form a large part of the business of these banks.

In addition to the three banks of issue there are several private banking and importing firms doing a general business of this character. Exchange is subject at times to very wide fluctuations. The country is on a silver basis, and American as well as local coins circulate freely.

RAILWAYS.

Railway expansion in Honduras has been extremely slow. In the year 1916 the total length of all lines in operation was approximately 517 kilometers (321 miles). All the railway mileage in operation is located on the Caribbean side of the Republic; most of it was built primarily for the banana and timber trades and only secondarily for the purpose of handling public traffic.

The National Railway of Honduras, although only about 88 kilometers (55 miles) in length, is probably entitled to rank as the most important railway in the Republic. The line has its terminus at the Caribbean port of Puerto Cortes and runs via San Pedro Sula inland for a short distance. The railway is the uncompleted section of the Inter-oceanic Railway of Honduras which was to have crossed the country to the Pacific Ocean. The project was first given publicity in 1850, following the gold rush to California, was surveyed in 1858, and turned over by its promoters to the Honduran Government a few years later. The development of the enterprise brought about the bankruptcy of the Republic and saddled it with a debt far beyond its possible resources (see "Government loans and finances," p. 420).

At the close of 1915 the valuation of the National Railway of Honduras was stated as 3,193,176 pesos (peso=\$0.3841). The gross receipts for the railway during that year totaled 429,126 pesos. In 1913-14 gross receipts totaled 280,346 pesos.

The line of railway operated by the banana-exporting firm of Vaccaro Bros. & Co. runs from the port of La Ceiba to San Juan and to various points in the interior, approximately 150 kilometers (93 miles). Yoro, the capital of the State of Yoro, is said to be the ultimate destination of the railway.

The Tela Railroad operates approximately 150 kilometers (93 miles) of line, including 37 kilometers (23 miles) of main track and 113 (70 miles) of branches. At the beginning of 1916 about 22 kilometers (14 miles) of additional roadway had been graded. The company owns a wharf at Tela, 606 meters (1,988 feet) long and 14 meters (46 feet) wide, fitted to accommodate large steamers. This is said to be one of the best-equipped wharves in Central America. In 1915 the Tela Railroad carried 840,000 bunches of bananas, 14,134 tons of general freight, and 1,362 passengers. The equipment consists of 8 locomotives, 7 gasoline trolleys, 3 passenger cars, 1 baggage and mail car, and 122 freight cars. About 96 kilometers (60 miles) of telephone line are operated and a number of buildings owned. The valuation of the property has been placed at \$3,000,000. It is said that upward of 4,500,000 bunches of bananas will be produced by the company annually.

The Trujillo Railroad is approximately 41 kilometers (25 miles) in length, and the output of bananas along the line is expected to reach 10,000,000 to 12,000,000 per annum. Plans call for the construction of large additional mileage. The railway terminates at the port of Trujillo.

The Cuyamel Fruit Co., which is said to have invested about \$2,000,000 in its enterprises, operates about 44 kilometers (27 miles) of

line. Other short lines in northern Honduras are operated by the Tropical Timber Co. (7 miles), the United Fruit Co., etc. The United Fruit Co., as of September 30, 1916, had invested the sum of \$3,777,408 in its railway enterprises in Honduras and \$9,730 in the construction of tramways to fruit plantations. The mileage owned or in operation under control of the United Fruit Co., amounted, as of September 30, 1916, to 183 miles. In addition, 9 miles of tramway lines were in operation. A total of 24 locomotives, 372 railway cars, and 27 tramway cars were in use. The United Fruit Co. lines were practically devoted to the company's fruit traffic.

The International Railways of Central America have surveyed a line across the Pacific slope of Honduras, to extend from the terminus of the Salvador Division of the railway to the boundary with Nicaragua. The line, if constructed, will open up for development the Departments of Valle and Choluteca. It is presumed that the International system will eventually be carried through to Costa Rica and Panama. The Honduras section of the system is to be approximately 88 miles in length.

A number of railways to develop the resources of the interior have been projected. One of these lines, it is expected, will eventually be carried as far as Juticalpa and possibly to Tegucigalpa, the Republic's isolated capital. Important interests are said to be financially interested in this project.

The railways of Honduras burn coal as fuel, but some of the lines, at latest accounts, were contemplating changing to oil owing to the present high price and scarcity of the coal. Operation by electricity generated from the readily available water power has been advocated, but, because of the small amount of available traffic, this would hardly warrant the expense.

A project being carried out by an American company calls for the construction of an automobile road from the inland terminus of the National Railway of Honduras to the shore of Lake Yojoa, 30 miles, and the building of a steamer for operations on the lake, which steamer will handle traffic from end to end of the lake, 30 miles, and will connect with a proposed automobile road to Tegucigalpa, the capital. Plans have been laid for the conversion of the automobile highway into a railway. The completion of the undertaking will shorten the route from the Caribbean Sea to the capital from seven days to a day and a half, or less. It is expected that the development of this enterprise will deflect to this route a large amount of the traffic destined to Tegucigalpa and other interior points. Under conditions previously existing freight was not booked by the Caribbean-Puerto Cortes route, but was sent via the Panama Canal and the Pacific port of Amapala.

An American company operates a line of small steamboats on the Ulua River, running from Progreso to connect with the Tela Railroad for the port of Tela.

PUBLIC UTILITIES.

There are at the present time no street-railway systems in Honduras and presumably no gas enterprises. Electric lights have been

installed in Tegucigalpa, the capital, Cuyamel, Ceiba, and San Pedro Sula, and possibly in one or two of the smaller towns. Several additional lighting properties are projected. The electric light and power enterprise that operates in Tegucigalpa and its environs has three plants located at Centro, Leona, and Rio Chiquito. Gross receipts for the year 1915 totaled 53,734 pesos and operating expenses 51,579 pesos.

The telegraph and telephone service of Honduras, as of December 31, 1915, totaled 7,829 kilometers (4,865 miles), an increase of 631 kilometers (392 miles) as compared with December 31, 1914. The service covers the most important centers of the Republic.

Opportunities will present themselves, as the country progresses, for the establishment of water, sewerage, electric lighting and power systems, and other public works. Tegucigalpa and its port, Amapala, are at present connected by a service of passenger and freight automobiles, which service will doubtless be extended following the construction of additional roads. The company operating this automobile line is said to earn a substantial profit.

MINING ENTERPRISES.

Minerals are known to exist in almost every Department in the Republic. In the days of the Spanish Conquest a large amount of gold and silver was mined and Honduras was considered one of the treasure houses of the Empire. It is said that in one year (1594) \$7,500,000 in gold and silver was taken from the Santa Lucia mines, near Tegucigalpa. This statement may or may not have been true, inasmuch as many exaggerated stories are told concerning the fabulous sums realized from the mines during the Spanish days; but it is known that the sixteenth and seventeenth centuries witnessed the production of very large quantities of minerals in Honduras and the other Central American States.

Despite the fact that numerous mining claims are held during the present era, and that attempts have been made to develop many of these claims, there is only one important mining property being operated at the present time. This is the New York & Honduras Rosario Mining Co.'s mine at San Juancito. This long-established American company has been highly successful, and its record of silver production is probably the best for any silver mine in Central America during modern times. In addition to its Rosario properties at San Juancito the company has been experimenting with various prospecting concessions at Chile Mountain, Guasucaran, Department of Tegucigalpa, and Santa Rosa de Potosi, Department of Choluteca. The Chile Mountain concession, located about 20 miles east of San Juancito, was prospected during 1916, but without sufficient encouraging results to make further investigation desirable. Development work was also carried forward in the Guasucaran and Santa Rosa de Potosi properties, but the possibilities of the properties had not been determined at the close of 1916. The following table showing production and dividend record is interesting:

Years.	Value of bullion production.	Dividends paid.		
		Numbers.	Amount.	Per cent.
1882.....	\$2,452			
1883.....	12,900			
1884.....	149,741			
1885.....	244,445			
1886.....	224,158			
1887.....	613,446	1	\$37,500	2½
1888.....	767,632	2 to 5	60,000	4
1889.....	590,190	6 to 14	150,000	10
1890.....	113			
1891.....	369,587	15 to 16	30,000	2
1892.....	614,499	17 to 21	165,000	11
1893.....	492,535	22 to 25	150,000	10
1894.....	392,486	26	37,500	2½
1895.....	158,164			
1896.....	449,526	27 to 28	30,000	2
1897.....	568,872	29 to 40	180,000	12
1898.....	611,468	41 to 48	120,000	8
1899.....	798,995	49 to 60	180,000	12
1900.....	827,443	61 to 75	225,000	15
1901.....	780,760	76 to 73	300,000	20
1902.....	490,273	94 to 100	105,000	7
1903.....	436,818	101	15,000	1
1904.....	721,375	102 to 108	105,000	7
1905.....	993,065	109 to 121	180,000	12
1906.....	1,112,172	122 to 139	285,000	19
1907.....	791,348	140 to 153	210,000	14
1908.....	788,910	154 to 165	180,000	12
1909 (10 months).....	636,500	166 to 173	120,000	8
1910.....	890,700	174 to 180	105,000	7
1911.....	887,170	181 to 182	90,000	6
1912.....	944,213	183	30,000	1½
1912-13 (12 months).....	1,051,273			
1913 (last 3 months).....	328,100	184 to 188	220,000	11
1914.....	1,239,877	189 to 193	240,000	12
1915.....	1,191,761	194 to 197	240,000	12
1916.....	1,553,115	198 to 205	400,000	20
Total.....	22,726,082		4,190,000	

NOTE.—Dividends 1 to 182, inclusive, on capital stock of \$1,500,000; dividends 183 to 205, inclusive, on capital stock of \$2,000,000

Dividend payments for the calendar year 1917 totaled \$400,000 or 20 per cent on the \$2,000,000 stock outstanding. Profits for 1916 totaled \$596,093 and after reserves \$460,110.

The ore reserves of the New York & Honduras Rosario Mining Co., as of December 31, 1916, were estimated at 312,143 tons, valued at \$2,970,698 United States currency, or \$49.51 per ton, this comparing with ore reserves of \$3,353,098 (343,716 tons) on December 31, 1915, and with \$4,380,446 (418,978 tons) at the close of 1914. The per-ton value of the ore in 1915 and 1914 was stated to have been \$9.76 and \$10.75. The company has excellent water power available and its plant and property are efficiently managed and very extensively developed along the most modern lines. The equipment in service includes an electric compressor, air-drills, a 350-ton stamp mill, cyanide plant, 1,200-horsepower electric plant, Ball mill, Dorr thickener tank, etc. In addition to the annual production of silver, fair amounts of gold (15,904 ounces in 1916) are obtained.

The \$10 par value shares of the New York & Honduras Rosario Mining Co. have been quoted during 1916 and 1917 at prices ranging from \$13 to \$19 per share.

A number of other properties are being or have been operated in a small way during recent years. The Santa Lucia Mine near Tegucigalpa, a famous producer during the Spanish period, was at last accounts under the management of local interests. It is claimed

that large returns could be realized from this property, if it were extensively developed. The Socorro Mine, in the district near Tegucigalpa, which covers an area of about 300 acres and produces gold and silver, is the property of the Socorro Gold & Silver Mining Co., a British concern (5 Fenchurch Street, London, E. C., England), capitalized at £120,250. The production for 1914-15 was estimated at £11,552, and the loss for the year's operations amounted to £4,771. The Antigua Gold-Copper Co., an American company incorporated in 1907, with a capitalization of \$2,000,000, acquired 531 acres at Minas de Oro, Department of Comayagua (about 100 miles southeast of Puerto Cortes). The property was worked in early days and showed outcroppings of gold and copper. The assays at the time of the organization of the property were stated to show 2 to 3 per cent copper, 2 to 4 ounces silver, and \$2 to \$4 gold per ton, in limestone. A stamp mill of 30 tons daily output and other improvements were installed by the company. No recent statement of operations is obtainable.

Copper ores are found in almost every Department of Honduras, but the mines are usually small and development has been very limited. Thus far the most promising deposits have been located in the Departments of Tegucigalpa, Comayagua, and Yoro. In the latter Department a vein is said to have been located with a width in places of as much as 14 feet, extending, it is claimed, for miles and giving ores "assaying 15 to 16 per cent copper." This copper vein and other ore bodies of presumably smaller dimensions occur about 40 miles from the Uloa River, in a region not easily accessible under present transportation conditions.

As stated, mineral traces and abandoned Spanish workings are widely scattered throughout the Republic. An extensive iron deposit exists at Agalteca, about 48 miles northwest of Tegucigalpa, this ore body being said to contain 100,000,000 tons. Efforts have been made to raise sufficient capital to develop this ore body, but these efforts have thus far been unavailing. Iron is found in other sections of the mountain ranges, and traces have been seen of lead, antimony, aluminum, zinc, nickel, coal, kaolin, asphalt, saltpeter, chalk, petroleum, etc. Some exploitation of petroleum has been carried out in the Puerto Cortes district, and some hopes are expressed that paying quantities of the oil may be obtained. Similar predictions are made concerning the Pacific coast section of the Republic.

Gold washing is carried on in many of the streams, and sometimes 1,000 or more of the inhabitants are daily engaged in the work. This primitive method of obtaining the precious mineral is said to pay a modest yet ample return to those engaged in the industry. Juticalpa is the center of this industry.

Some hopes are entertained that certain deposits of antimony located in the Lake Yojoa and Yoro districts may in time be worked with substantial profits. Shipments of very high-grade ore have been made, but the profitable development of the mines await better transportation facilities.

Taken as a whole, Honduras will presumably take first rank in the future among the Republics of Central America as a producer of minerals. The country at present, however, is almost devoid of means of transportation. There is only one railway that can really

be spoken of as a common carrier, only a few isolated river transportation lines, and an almost complete absence of roads or even trails. When these transportation difficulties have been overcome (a somewhat difficult matter, considering the mountainous nature of such a large part of the country) the future of the industry seems assured.

AGRICULTURAL AND PASTORAL INDUSTRIES.

The United Fruit Co. has been the prime mover in the agricultural development of Honduras. This company had invested to September 30, 1916, the sum of \$7,614,535 in the Republic, this including \$917,130 in lands, \$849,641 in cultivation, \$805,028 in houses and other buildings, \$3,777,408 in railways, \$253,651 in wharves and lighters, etc. The company owned 18,435 acres of improved and 144,702 acres of unimproved land, and leased 170 acres of improved and 16,938 acres of unimproved land. Of the land under cultivation, 12,914 acres were used for raising bananas, 97 acres for coconuts, and 21 acres for rubber. In addition, 1,531 acres were used for pasturing live stock, 420 head of cattle, 977 mules and horses, and 143 other animals being owned. The railway and tramway lines serving the company's properties totaled 183 miles and 9 miles, respectively.

In addition to the United Fruit Co., extensive plantations are owned by Vaccaro Bros. & Co., the Cuyamel Fruit Co., etc. There are also a number of independent planters. Concerning the condition and future of the industry United States Consul Walter F. Boyle, at Puerto Cortes, reported under date of January 13, 1917:

During 1916 the banana industry suffered many reverses, with resultant unsatisfactory business conditions. The "chapulin," or locust plague, continued unabated and destroyed a large quantity of fruit as well as many other crops. There were several bad blow-downs at various places in the district and a long series of floods which retarded for several months the fertile banana-producing territory along the Ulua and Chamelecon Rivers. Short periods of overflow do not affect the banana crop; on the contrary, the silt brought down by the flood improves the soil, but long and continued periods of overflow damage the plants and retard production for many months.

The cultivation of the banana is simple. The land is cleared by felling the big trees and burning the underbrush, then the bananas are planted and subjected to a semiannual cleaning and pruning with the big sword-like knife known as a machete. There is no plowing, harrowing, or laying by of the crop; the stumps and trunks of the felled trees are not removed from the land, and in a few years they decay and thus return to the soil much needed humus required by the banana plant.

The real problem is that of rapid transportation and distribution, which requires a system of railroad and tram lines in Honduras, terminal facilities, steamship lines, and a marketing organization in the United States all working together. Cuttings are ordered by telegraph and must be accomplished in from 24 to 36 hours, and once the fruit is cut every handling follows in quick succession, day or night.

The banana bunch or stem is divided into "hands," and the individual bananas growing on the hands are known as fingers. The standard or payable bunch is the one of nine hands or over. Many short-hand bunches go to waste annually.

Banana exports to the United States in 1916 totaled \$2,885,776 (10,654,369 bunches).

Coffee, coconuts, cacao, rubber, sugar, as well as maize and various cereal crops are grown in moderate quantities. The coconut indus-

try of Bay Islands is important, there having been exported to the United States in 1915 and 1916 (largely from Bay Islands) 12,359,645 and 9,676,982 coconuts, respectively, valued at \$220,289 and \$306,758. Coffee exports to the United States in 1915 and 1916 totaled \$55,922 and \$43,260. Crude rubber exports to the United States in 1916 were valued at \$49,622.

The cattle industry gives signs of promise. Honduras is an excellent cattle country, although exports of the animals have been greatly retarded owing to the presence of tick. It is estimated that there are between 350,000 and 400,000 cattle in the Republic, and it is claimed that a meat plant would handle a substantial business for export. During 1915 and 1916 cattle products (mostly hides) were shipped to the United States to the value of \$294,250 and \$352,133, respectively. Live cattle are also exported to British Honduras, although not in very large numbers. Formerly a considerable number of cattle were shipped to Cuba, and of late several attempts have been made to revive the trade.

Following the introduction of improved stock for breeding purposes and the establishment of a small refrigeration plant, probably at San Pedro Sula or Puerto Cortes, it is estimated that 50,000 beef cattle might readily be marketed annually.

FOREST WEALTH.

Honduras contains considerable timber wealth, including mahogany, rosewood, cedar, pine, and other kinds of wood. Although a great many of the trees, located within short distances of the various Carribbean ports, have been cut, there are still countless trees standing in the less accessible interior, along the banks of streams and elsewhere. Some of the timber companies have built railways into the thickly timbered districts, and further extensions along these lines will doubtless be carried out. The establishment of better means of interior communication and the improvement in the marine shipping situation will probably bring about the rapid expansion of the timber industry. In addition to the less accessible hardwoods, pines, etc., there are large areas of assorted softwoods that might be available for making paper, etc.

MANUFACTURING.

Honduras lays no claim to being a manufacturing country, its development in that field being probably the smallest of any country in Latin America. The following table was compiled by Special Agent Garrard Harris, of the United States Department of Commerce, from the records of the Department of Promotion of the Honduras Government:

Department of Tegucigalpa.—Population about 85,000. Two small shoe-making plants; two small soap and candle factories, one with a small sawmill attached; three makers of bottled soft drinks; one ice plant, bottled-drinks establishment, and small sawmill; two small breweries; one factory making sugar and aguardiente, or rum; one small gristmill; one small sawmill; one small cigar factory, and one making cigars and cigarettes; one hat factory, making straw and palm hats; two makers of brick and dealers in cement; one marble yard, handling also bricks and cement; two small bakeries; one small

candy factory; one leather-working shop; and five establishments making aguardiente only.

Department of Atlantida.—Population about 10,500. One factory making aerated water; one making bottled soft drinks; another making soft drinks and ice also; one making ice solely; and one making aguardiente.

Department of Valle.—Population about 34,000. One soap factory; four making "aguas gaseosas" or aerated water, soda pop, etc.; one ice factory; and one tanyard.

Department of Choluteca.—Population about 47,000. Four soft-drink bottling establishments; one brick and cement establishment; one tanyard; and two factories making aguardiente.

Department of Cortes.—Population about 24,000. One soap and candle factory; two distilleries making aguardiente; one making soft drinks; and three ice factories. All are small.

Department of La Paz.—Population 28,000. Two distilleries making aguardiente, and one making wine from oranges.

Department of Islas de Bahia.—Population 5,000. One soft-drink factory; one making ice and ice cream; and two boat-building yards.

Department of El Paraíso.—Population 7,000 (estimated). Four aguardiente stills and one soft-drink factory.

Department of Copan.—Population 44,000. Thirteen factories making "puros" or native cigars, and four stills making aguardiente.

Department of Colon.—Population 15,000. One ice factory.

Department of Yoro.—Population 20,000. Three aguardiente stills.

Department of Santa Barbara.—Population 37,000. Five aguardiente stills; one sawmill; and one soap, candle, and ice factory combined.

Department of Ocotopeque.—Population 19,000. One gristmill, and one aguardiente still.

Department of Olanchó.—Population 45,000. Two straw-hat factories, and two aguardiente stills.

Department of Gracias.—Population 40,000. One straw-hat factory, and two aguardiente stills.

Department of Intabuca.—Population 27,000. One hat factory (straw or palm), and one aguardiente still.

Department of Comayagua.—Population 30,000. Four aguardiente stills.

SURVEYS BY AN AMERICAN COMPANY—PROPOSED UNDERTAKINGS.

According to a report by United States Consul E. M. Lawton, an American company during the past two years has been making extensive surveys and study of the mouth of the Patuca River in order to form an estimate of the cost of properly developing the Mosquito Reservation. The Honduras Government is now considering the proposals made by this company.

The project is distinctly in line with a measure passed at a recent session of Congress for a free port at the mouth of this river, especially for the development of that section.

The concessionaires propose to dredge the Patuca bar to admit ocean-going steamers; to build wharves at the new port of Herrera, together with customhouse, "comandancia," and all necessary Government buildings; install wireless telegraph and telephone systems, and erect lighthouses, all of which will become the property of the Government at the expiration of the concession. For its own use the company proposes to erect sawmills, turpentine stills, dye works, sugar refinery, and meat-packing house. In addition to the improvements of the bar and the Patuca River it expects also to build canals connecting the Patuca and Wanks Rivers with the Caratasca Lagoon, so that not only the Patuca but the Wanks River as well will have navigation facilities.

The company asks for Government grants of timberland to the extent of 125,000 hectares of land (about 310,000 acres), to be selected on alternate sides of the river and alternating with Government tracts. The duration of the concession is 25 years.

The estimated cost of the bar dredging and lighthouse is \$100,000 and a like sum for the necessary wharves and wireless station.

Honduras, despite its lack of transportation facilities, is a country offering numerous opportunities for development and is a field certain to attract American capital.

NICARAGUA.

INTRODUCTION.

The Republic of Nicaragua, with an area of slightly more than 50,000 square miles, is presumed to be the largest among the Central American countries. Its estimated population is 600,000, of whom about 35,000 reside in Managua, the capital, 45,000 in Leon, and from 15,000 to 20,000 each in Chinandega, Granada, and Masaya. A large majority of the inhabitants live in the western and north-western sections of the Republic. The principal ports are Corinto, on the Pacific Ocean, and Greytown, Bluefields, and Cabo Gracias a Dios on the Caribbean coast.

The principal exports of Nicaragua are coffee, hides and skins, gold, hardwoods, and bananas. The principal customer is the United States, France usually ranking second. The country is primarily given up to agriculture, although mining, cattle raising, and timber cutting have received attention. The United Fruit Co. holds about 170,882 acres of land in Nicaragua, all of which is unimproved.

FUNDED DEBT.

Nicaragua's financial history virtually dates from 1827, in which year it assumed approximately £27,200 of the debt of the dissolved Central American Federation. This debt was settled in 1874.

In 1886 £285,000 bonds of the Nicaragua Railways, bearing interest at the rate of 6 per cent per annum, redeemable in 1919, were issued, being publicly offered at 92½. This issue was converted in 1909 into 6 per cent bonds authorized during that year, the basis of exchange being £86 in new bonds for each £100 of the railway bonds.

In 1904 a 6 per cent loan to the amount of \$1,000,000 United States gold was negotiated at 75 per cent in the American market, this loan being retirable at the rate of \$200,000 every five years until final maturity. In 1905 a small loan was contracted in Europe, being in the form of an advance against collateral. Both of these loans were converted or redeemed in 1909 (see next paragraph).

The Government authorized in 1909 £1,250,000 6 per cent sterling bonds, of which £500,000 were to be used to convert or redeem the various outstanding loans, as above, £570,000 for the construction of a railway line from Lake Nicaragua to the Caribbean Sea; and £180,000 for the general purposes of the Government. The bonds were offered in London and Paris at 92 and 93½, respectively, or were exchanged for the bonds of the Railway Loan at 86 per cent. Certain customs receipts and revenues were assigned for the annual service of the loan, which amounted to £87,500. The cumulative sinking fund was to have retired the loan within 35 years from January 1, 1910.

Interest on the loan was paid through 1911, partly through unexpended principal, but was suspended in 1912. In the same year an agreement was entered into between Brown Bros. and J. & W. Seligman, of New York, representing the Republic of Nicaragua, and the Council of Foreign Bondholders, London, representing the bondholders. Under the arrangement the January, 1912, coupon was paid in full and the July, 1912, and January, 1913, coupons at the rate of 5 per cent per annum, the necessary amount being provided through the unexpended balance of the principal of the 1909 loan. All future coupons were to be at the rate of 5 per cent per annum. The arrears in the sinking fund were to be paid and the fund was to be maintained at 1 per cent per annum during the life of the loan. The bondholders were to have an unconditional first lien on the customs revenues during the life of the loan, relinquishing their rights to any other security. In the event of failure to make necessary payments on the loan the interest was to revert to the former rate of 6 per cent.

In January, 1915, the interest on the loan was suspended owing to the falling off in customs revenues and the general financial condition of the country, due to the war. In accordance with a law passed in March, 1915, four-fifths of the coupons due January, 1915, were paid, with interest at 6 per cent to April 30 on the full amount of the coupons. The Government made arrangements for the future service of the loan, but owing to the continued depression was unable to carry these arrangements into effect.

These bonds were quoted in January, 1918, at 60. Of the original issue of £1,250,000 bonds, £1,179,620 remain outstanding.

Mention should be made of the financial plan adopted by Nicaragua in the law of February 14, 1917, for the purpose of reorganizing and consolidating certain of its external and internal debts. In accordance with this law a Commission of Public Credit was established, consisting of three members—one, a citizen of Nicaragua, appointed by the President of the Republic; another, a citizen of the United States, appointed by the Secretary of State of the United States; the third, acting as umpire in case of disagreement between the other two members, appointed by the Secretary of State of the United States from among the Permanent Nicaraguan Group Committee established during the Pan American Financial Conference in Washington in 1915, this third person being a citizen of the United States.

The function of this Commission of Public Credit is to examine, classify, and consolidate the Nicaraguan debt by using the unexpended moneys remaining from the purchase of the canal option rights under the treaty with the United States and a reasonable amount of internal bonds. This commission will also make agreements with creditors when this method is necessary and is for the mutual advantage of both parties.

According to the financial plan, the National Bank of Nicaragua shall be a depositary of the funds (general revenues) of the Government, and all payments made by the Republic shall be by check or draft of the Minister of Finance or of such deputy as he may appoint for that purpose, and shall specify on their face the par-

ticular budget account against which they are drawn, and no checks nor drafts shall be drawn except as thus produced. All checks or drafts paid by the bank shall be retained by it and shall be vouchers for and conclusive proof of the payments to which they respectively refer. The bank shall open a separate account for each item of the budget, and if the funds to the credit of such account shall be sufficient, shall honor checks or drafts against it up to an aggregate amount not exceeding the amount of such respective item; but, except as thus expressly provided, the National Bank shall not be obligated to inquire into the correctness of such payments nor into the powers or authority of the person who may from time to time act as Minister of Finance or of the Government by him represented, and all payments made in good faith upon checks or drafts drawn by such Minister of Finance or by his deputy shall be full protection to the bank.

Brown Bros. & Co. and J. & W. Seligman, bankers of New York City, connected with the Mercantile Bank, signed a contract on September 1, 1911, with the Government of Nicaragua which gave them the right to establish the National Bank of Nicaragua.

RAILWAYS.

There is only one railway line of commercial importance in Nicaragua. This is the Pacific Railway of Nicaragua, which has its Pacific terminus at Corinto, on the Pacific Ocean. A large portion of the line was built during the eighties and nineties, the entire system being completed in 1903. The construction cost of the first 90 miles of road, completed between 1883 and 1886, was \$2,005,584, this sum including the cost of some small river and lake steamboats.

After leaving Corinto the railway follows the Pacific coast in a northwesterly direction for a short distance and then strikes northeasterly to Chinandega. Leaving that city the line abruptly turns in a southeasterly direction, running to Leon (the largest city in the Republic), Managua, Granada, and Dinamba, the total mileage being approximately 163. In 1912 a company was formed to reorganize and take over the road, 51 per cent of the stock to be held by American bankers and 49 per cent by the Republic of Nicaragua.

Part of the proceeds of the Government loan of 1909 were, it was expected, to have been used to construct a line from Lake Nicaragua to the Caribbean Sea, opening to the outside world a large tract of more or less valuable territory and providing a means of outlet to Atlantic ports for the products of the western uplands. The distance from Lake Nicaragua to the port of Greytown on the Caribbean Sea is not more than 75 miles. The construction of this line and the improvement of the port of Greytown would prove of inestimable benefit to the Republic and would do much to restore its former prosperity.

Several other railway schemes to open up eastern Nicaragua have been talked of and a number of lines wholly or partly surveyed. It is presumed that the International Railways of Central America will eventually link up with the existing Pacific Railway of Nicaragua, and will then be carried through to Costa Rica and possibly Panama.

PUBLIC UTILITIES.

Some steps have been taken in the development of public utilities. Managua, the capital, Leon, Granada, Corinto, Chinandega, and a few other places have electric lighting systems presumably adequate for their respective needs, although further opportunities will doubtless arise from time to time. Approximately 806 miles of telephone lines have been laid out in the Republic, and there are 30 stations. The telegraph lines (which, together with the telephone lines, are operated by the Nicaraguan Government) cover 3,637 miles, and there are 130 offices.

MINING ENTERPRISES.

The mineral development of Nicaragua is likely to assume considerable importance in the future. Gold is the most important mineral mined at present. A very small amount of copper is produced as a by-product from the smelting of silver ores. Copper has also been located on the Caribbean coast and along the Mico and Escondido Rivers. Very promising belts have been located in the Department of Segovia (near the Honduras boundary), but development is almost impossible owing to the rough nature of the country and the general lack of means of transportation. Copper has also been found in the Departments of Leon, Zelaya, and Matagalpa.

Gold is found in the Pis Pis mining district and elsewhere in the Republic. In November, 1914, the Tonopah Mining Co., a large American concern, acquired a majority of the \$1,000,000 stock of the Eden Mining Co., controlling 9 square miles in the Pis Pis district. A fair amount of development and construction work has been carried on, and it was expected that ore shipments would begin during the year 1917. Net average values of ore were reported to be \$13 to \$15 per ton, with mining and milling costs less than \$6 per ton. The electric power is obtained from the Tunkey Transportation & Power Co., which was organized to acquire and operate the power plant, railroad, and river transportation, the entire stock of the latter company to be held by the Eden Mining Co.

The Pis Pis mining fields are not readily accessible, and the establishment of transportation facilities will be of the utmost benefit to the entire district. The usual means of transportation at present are gasoline launches, canoes, and mules, the trip covering more than a week.

In addition to the Eden properties, the Tonopah Mining Co. has acquired 93 per cent interest in the Tonopah Nicaragua Co., organized to operate the Santa Rita mines, located some 30 miles from the Eden mines. A force of men was sent early in 1917 to clear the property, and it was expected that shipments would begin before the close of the year.

A British company known as the Nicaragua Development Syndicate, incorporated in 1900, is in control of several of the important mining properties in the Republic, these comprising the Santa Rosa mines, the Quilali mines, and the San Juan Talpaneca mines. The capitalization of the company is £14,885 ordinary and £21,112 10 per cent cumulative preference stock, on which no dividend is being

paid. The company has done considerable development work but has not yet placed the mines on a profitable basis.

The Central American Mines (Ltd.), a British company incorporated in 1913, as a reconstruction of the Oroya Leonesa (Ltd.), holds the Leonesa, La Reina, and Español mines. The capitalization of this company consists of £150,000 shares of 5s. par value, of which £112,503 10s. has been paid up; also £35,000 6 per cent debentures, redeemable at par on November 30, 1917, and convertible into stock at par. A plan is said to be under consideration to place the properties in good financial condition. The mines are said to be extremely rich and to offer excellent opportunities for extensive development. The gross receipts for the calendar year 1914 were £38,379; for 1915, £47,193; and for the first nine months of 1916, £31,304. The treatment plant was shut down during part of the period under discussion and all available efforts were concentrated on development work. The Oroya Leonesa (Ltd.), which this company succeeded, was registered in Great Britain during the year 1910. A battery of 20 stamps, together with cyanide and slime plants, are owned.

In addition to the mines here described there are a number of gold properties, more or less valuable, some of which are producers. There are also some silver mines, but these are mostly small and of little importance. Mining claims are not difficult to obtain in the Republic and water-power rights are readily granted. A mining claim consists of approximately 12,335 acres, and a moderate monthly rental is payable. There is an export tax on gold amounting to 48 cents per ounce.

AGRICULTURE.

As previously stated, the United Fruit Co. owned, at the close of 1916, 170,882 acres of unimproved land in Nicaragua, the company not being actively engaged in that Republic. At the same time the Atlantic Fruit Co. held about 125,000 acres of land. Individual planters of bananas are fairly numerous in the country, the exports of the fruit in 1914 amounting to more than 1,500,000 bunches.

Sugar cane is grown in the Departments of Chinandega and Leon, the largest property being owned and operated by the Nicaragua Sugar Estates (Ltd.), which company, according to a statement of Special Agent Garrard Harris, of the Department of Commerce, produced 4,800 tons in 1913 and 4,000 tons in 1914. There are several other estates producing from 100 to 800 tons per annum and a number of smaller producers. Prospects for the development of the sugar industry are said to be excellent.

Coffee is the principal agricultural product of the country and forms the bulk of its exports. Large portions of the western section of the Republic are suitable for coffee growing.

Coconuts, cacao, cotton, rubber, and a few other products are raised and exported in a moderate way, and there are sufficient cereals for the needs of the inhabitants. Methods of cultivation, although improving, are crude. The country as a whole is primarily agricultural and will continue so for a considerable period.

CATTLE AND OTHER LIVE STOCK.

The cattle industry bids fair to assume considerable importance in the Republic. Small but hardy animals are raised, and there is a good market for the beef at home and in Costa Rica. The possible construction of a railway at some future date would facilitate transportation to the latter Republic. Most of the cattle are ranched in the western section of the Republic, particularly in the Departments of Chontales, Matagalpa, and Jinotega. Endeavors are being made, through the importation of high-class stock, to improve the general breed. There is plenty of good grazing land available.

Sheep are also raised in the Republic, but not in very large numbers. Practically none of the animals are exported. A few horses are also raised.

FOREST PRODUCTS.

Despite the fact that Nicaragua contains almost every variety of hardwoods and a vast amount of timbers of other descriptions, there is only an extremely small number of sawmills, all small and crude. The expansion of the timber industry, needless to say, awaits better transportation facilities. In 1914 mahogany was exported to the approximate amount of \$430,000 (10,127,000 feet), this indicating the possibilities of the industry under better conditions than now exist.

MANUFACTURING.

Very little development has been carried out in manufacturing. A few small ice factories, perhaps a dozen sawmills, some furniture and cabinet-making establishments, a bottling plant or two, and a few small hat factories form the bulk of the manufacturing concerns.

FOREIGN CAPITAL INVESTED.

The amount of foreign capital invested in Nicaragua has thus far not been large. Great Britain, holding probably more than £1,000,000 of the Government loan and a number of mining properties, has perhaps the largest interests in the field. The United States, with banking, agricultural, mining, and other enterprises, is probably next in order, while a small amount of German capital has been invested in coffee plantations and other industries.

PANAMA.

INTRODUCTION.

The Republic of Panama comprises the isthmus of the same name, with the exception of the narrow strip bordering the Panama Canal and officially known as the Canal Zone. The area of the Isthmus is 32,380 square miles, and the population in 1912 was 341,090. The Republic is traversed by mountain ranges, and its climate varies, according to altitude, from torrid to temperate. The rainfall throughout the Caribbean coastal region is considerable, sometimes exceeding 150 inches per annum. The average rainfall for the Pacific slope is much lower, seldom exceeding 65 inches per annum.

Panama City, the capital and Pacific port, has an estimated population of 60,028, while Colon and Cristobal contain approximately 29,000 inhabitants. The other cities of the Republic are not large: David, the capital of the Province of Chiriqui, has about 6,000 people and the Atlantic (Caribbean) port of Bocas del Toro approximately 3,500.

According to the statement of the Panamanian Government published in 1914, the total valuation of private property in the Republic was \$33,175,501, of which \$17,487,469 was in Panama City and Province. Of the total, \$18,791,907 represented houses, \$5,730,290 lands, and \$4,705,125 cattle and horses.

The foreign trade of Panama for 1916 amounted to \$14,704,179, as compared with \$12,279,470 for 1915. The imports for 1916 amounted to \$9,197,454 and the exports \$5,506,725. Of this total trade, about 85 per cent was with the United States. Agricultural products formed the bulk of the exports.

NATIONAL DEBT.

According to the report of the Secretary of the Treasury of the Republic of Panama, the total outstanding liabilities on September 30, 1916, were \$6,755,443. The expenditures for the calendar years 1917 and 1918 were estimated at \$7,198,170, and it is stated that the estimated receipts of the Republic would be sufficient to provide for these expenditures.

Practically all of the external obligations of the Republic are held in the United States. The National City Bank of New York arranged in 1914 to take an issue of 5 per cent 30-year gold bonds, at 97, as issued. A large proportion of the proceeds was to be used for the construction of the Chiriqui Railway (see p. 439), running from Pedregal on the Pacific coast to the Boquete coffee district. The maturity date of this issue is March 1, 1944, interest is payable May and November, and bonds are retireable through sinking fund at 102½. The Government of Panama may call the issue at 105 and interest. There has been issued \$2,250,000 of these bonds.

In 1915 the firm of Lawrence Turnure & Co., of New York, issued, in behalf of the Government of Panama, \$1,200,000 5 per cent secured serial gold bonds, maturing \$130,000 December 1, 1917, \$130,000 annually thereafter including December 1, 1924, and \$160,000 December 1, 1925. Interest is payable June and December, and the issue is secured by the income from the \$6,000,000 constitutional fund of the Republic, which is invested in New York real estate first mortgages. The net revenue from this fund for the year 1915 amounted to \$256,160. No additional bonds may be issued against this fund as long as this particular issue is outstanding.

There is also outstanding an issue of \$1,250,000 12-year 5 per cent bonds, dated 1916 and due 1928.

RAILWAYS.

The most important railway on the Isthmus is, of course, the Panama Railroad, owned and operated in the interests of the United States Government, the holder of its \$7,000,000 stock. The railway extends from Colon to Panama and owns extensive and valuable terminals in the two cities. The total track under the Panama Railroad control, not including canal construction tracks, was, as of June 30, 1916, 135.88 miles. The gross earnings from the railroad for the year ended June 30, 1916, amounted to \$4,559,218, as compared with \$3,014,864 in 1914-15, \$4,567,406 in 1913-14, and \$4,599,163 in 1912-13. Operating expenses for 1915-16 were \$3,674,931 and net earnings from the railroad \$884,287. Steamship earnings for the year totaled \$3,341,279 and net earnings from that source totaled \$1,004,373. Other income brought the total receipts of the Panama Railroad up to \$2,532,616, and net income after all charges was \$2,453,592, as compared with \$914,861 in 1914-15, \$2,303,340 in 1913-14, and \$2,179,176 in 1912-13. The profit-and-loss surplus carried to the general balance sheet, as of June 30, 1916, was \$19,341,483.

In February, 1914, the Government of the Republic of Panama gave a contract for the construction of a 53-mile narrow-gauge (3-foot) railway located in the Province of Chiriqui, to extend from the Pacific port of Pedregal to David, capital of the Province, thence to Boquete, with a branch from David to La Concepcion. Although operating expenses were not earned during the earlier periods of operation, it is expected that the railway will greatly aid in the development of the rich interior of the Republic.

The United Fruit Co. owns or operates a large mileage, mostly radiating from the Caribbean port of Bocos del Toro. These lines were constructed primarily for the banana trade, but handle a limited traffic in passengers and public freight. The total mileage of railways operated in Panama by the United Fruit Co., as of September 30, 1917, was 270, in addition to which 19 miles of tramways were in use. Locomotives in service numbered 36, railway cars 590, and tramway cars 24. The cost of the railways owned by the United Fruit Co. in the Republic was \$3,587,373 and of the tramways \$12,916.

A concession was granted by the Government early in 1917, for the construction of a railway from the Chagres River to Almirante and other places in the Atlantic coastal region. The railway would,

it is claimed, place Panama City and Colon in touch with a rich and productive section of the Republic.

The railway mileage in the Republic and Canal Zone, exclusive of tramways and construction tracks, totals about 460 miles.

PUBLIC UTILITIES.

The public-utility development in the Republic is largely confined to Panama City and Colon. The former place is the only one on the Isthmus containing a traction line. Both of the cities are lighted with electricity and gas and have telephones, good water, and other improvements.

The Panama Electric Co., an American corporation, was registered in 1914, as successor to the Panama Tramways Co. The franchises of the company are for 50 years from 1913, with renewal privileges. The road extends from Balboa to Ancon, Bella Vista, and Sabana, traversing Panama City, the total length being 10 miles. Twenty-nine cars are operated. About 2 miles of additional lines are planned.

The capitalization of the Panama Electric Co. consists of \$1,500,000 stock (\$2,500,000 authorized) and \$1,050,000 first-mortgage gold 5 per cent bonds due 1944. A sinking fund of 1 per cent of the maximum amount of bonds issued will operate between 1920 and 1943. Interest is payable June and December, the bonds are a first lien on the entire undertaking, and the total authorized issue is \$2,500,000.

The gross earnings of the company for 1915 amounted to \$193,779; net earnings were \$44,755; surplus after charges, \$7,672. The credit balance to profit and loss as of December 31, 1915, amounted to \$60,801.

The Panama-American Corporation, with a capitalization of \$500,000, is operated in the interest of the Electric Bond & Share Co., of New York, its majority stockholder. The company controls the Telephone Co. of Panama, and also manufactures and serves electricity and ice. The original date of the incorporation of the company was 1904, and the date of the acquisition by the Electric Bond & Share Co. was 1916.

The Panama Gas Co., incorporated under the laws of Delaware and controlled by Philadelphia, Pa., interests (Starr & Reed), has recently established a gas works in the city of Panama, and will supply without competition all gas for light, heat, fuel, and power in the city. The capitalization of the company consists of \$500,000 stock, par \$25, and \$700,000 first-mortgage 6 per cent bonds due November, 1935, interest payable May and November, and secured by a first mortgage on the entire undertaking.

The Colon Gas Co., under management similar to that of the Panama Gas Co., furnishes gas for lighting, fuel, power, and heat to the city of Colon. The company has outstanding \$250,000 stock, par \$25, and \$400,000 first-mortgage 6 per cent bonds due May 15, 1935, interest payable May and November. The bonds are a first lien on all properties and franchises.

An electric lighting and power service was inaugurated at Penonome early in 1918. A water system for the city is also planned.

AGRICULTURE.

Panama is primarily an agricultural country, its most important products being bananas and coconuts. The United Fruit Co., whose principal headquarters are at Bocas del Toro, had invested to September 30, 1917, \$7,392,735 in tropical plantations and equipment. The lands of the company in Panama were carried at a valuation of \$905,976, the houses and buildings owned at \$769,610, cultivation of lands at \$1,238,878, and live stock at \$100,715 (see also "Railways"). The amount of improved land owned by the company in Panama was 35,943 acres, and the unimproved acreage totaled 88,298. Of the developed land, 28,288 acres were under bananas, 3,508 under cacao, 788 under coconuts, and 2,246 used for pasturage, the company owning 1,492 head of live stock.

The coconut industry seems to have attracted considerable attention in the Republic. There follows an article prepared by Mr. C. M. Brown and included in the general summary of conditions in Panama by Consul General Alban G. Snyder, Panama City, June 1, 1917:

Most of the coconuts grown in the Republic are found along the Palenque and San Blas coasts on the northern or Atlantic side of the Isthmus, from which region the annual exportation is about 15,000,000 nuts. The plantations belong to small owners, as a rule, and no cultivation is practiced except machete cleaning at different times. The coconut is the main source of livelihood of the San Blas Indians, who own many trees. One large American plantation on the Palenque coast, now coming into bearing, consisting of more than 50,000 palms and owned by the Colon Coconut Co., is the only large development in that section.

At Coco Plum Point, near Bocas del Toro, the Franklin Baker Co., an American concern, intends to plant 300,000 palms, of which 100,000 have already been set out. Within the past two years the United Fruit Co. has entered the field as a planter of coconuts at Bocas del Toro on land formerly devoted to banana plantations. The Tropical Plantation Co. acquired in 1916 a small property near Bocas del Toro containing 15,000 palms just coming into bearing. This number is to be increased.

Besides the Venado plantation, located within the boundaries of the Canal Zone and now the property of the United States Government, the development of the industry on the Pacific side of the Isthmus includes the plantations of the Boston-Panama Coconut Co., at Mariato, with 100,000 palms; J. Piza, near Remedios, 25,000; R. Arias, Palo Grande, 15,000; and Isaac Brandon & Bros., about 25 miles from Panama City, 10,000; all except the last named, which is called the Perequete, are not yet producing.

This property, the Perequete plantation, is now being enlarged. During the past year a part of its product was used for making copra by sun-drying methods, and satisfactory prices were obtained.

The coconuts grown on the Pacific side are known as the Choco variety and are larger on the average than those raised on the Atlantic side, although the San Blas and the Palenque are considered on the New York market as good sized, compared with the average coconut from the West Indies. Climatic conditions in Panama are particularly favorable for coconut growing, and in normal times there is adequate and cheap water transportation to the northern markets. High freight rates and lack of shipping facilities due to the war have hindered the development of coconut planting in this country, but the outlook for the industry is bright. The new uses to which coconut oil is being put in the United States have stimulated prices there.

The total value of coconuts exported in 1916 was \$718,280, as compared with \$251,086 in 1915. The number of coconuts shipped was 17,873,324, as compared with 11,462,492 in 1915. Most of the exports were from Colon. There is said to be a very large acreage of coconut lands available in Panama and it is probable that the industry will show continued progress.

Cacao is being planted to a considerable extent, but the amount grown for export is still comparatively small. In 1916, 359,455 pounds of cacao, valued at \$43,490, were shipped abroad. A large number of trees planted during recent years have not yet come into bearing.

During the later days of the construction of the Panama Canal a number of employees acquired agricultural areas, mostly located in Chiriqui Province. These areas were planted or were stocked with cattle. There followed a little land boom in the district and companies were formed with the object of attracting settlers. Owing to the fact that some of these enterprises were of the get-rich-quick order and that others, although honestly financed and managed, attracted a class of settlers wholly unfamiliar with tropical farming, many of the undertakings have failed and in some cases settlers were returned to the United States at the expense of the American Government.

Many of the farmers who have come to Panama have made money, however, and the agricultural areas of the Republic are capable of considerable development. The Government of Panama is lending every possible aid to settlers.

CATTLE RAISING.

The cattle industry in Panama shows promise, there being upward of 50,000 of the animals throughout the Republic. Breeding cattle may be imported free, and every effort is being made to extend the industry. There is a large amount of good cattle land in the country, and it is probable that nearly one million animals could be readily sustained. As the industry expands there will be room for the establishment of packing houses, and in 1916 legislation was passed with the view of establishing slaughterhouses and refrigerating plants, the Panamanian Government agreeing to waive all duties on machinery and needed supplies, as well as all taxes for a period of 20 years, and agreeing furthermore to give grants of land of from 1,000 to 1,500 hectares (2,471 to 3,707 acres) to those engaged in cattle breeding.

MINERALS.

Panama is not without mineral wealth, as gold exists and is mined, while silver, lead, aluminum, and asbestos have been found in various locations. Copper and coal have been located near Bocas del Toro and Golfo Dulce, salt near Aguadulce, manganese at Nombre de Dios and elsewhere, lignite on the Canal Zone, and iron in varying quantities in many places throughout the Republic.

Gold was mined in Panama before the Spanish Conquest, and to-day a certain amount of mining is carried on in the Darien Province, not far from the boundary with Colombia. Gold also exists in the Province of Veraguas and small amounts of it are obtained annually. In the Province of Los Santos are old mines, among them the Guacimo at Las Minas, formerly operated by the Boston-Panama Mining Co., an American concern. A shaft was sunk at this mine and considerable effort made to develop it. Gold and copper were found. The mine is presumably idle at the present writing.

Manganese, which has been found on the Caribbean coast, has given promise of becoming the most important mineral in the Republic. Exports for 1916 totaled \$328,684.

The existence of petroleum is known, and concessions have been granted to the Panama-Sinclair Corporation, an American company, to carry out exploitation work.

FOREST PRODUCTS.

The forest wealth of Panama is considerable, and its development has attracted attention among outside capitalists. A number of companies have been formed to cut hardwoods and lumber, but thus far the exports have been insignificant. The Darien district and other sections of the Republic are densely covered with standing timber, including mahogany, cedar, rosewood, and other valuable trees of varied descriptions. Lack of suitable means of transportation and high freight rates have greatly retarded the development of the industry, and the capital thus far invested has scarcely returned even a moderate amount of interest.

The timber industry is destined, however, to be of great future importance to the Republic. The standing trees are worth many millions of dollars. There are said to be no less than 1,000,000 laurel trees in Panama, some exceeding 100 feet in height. The espave, producing a wood not unlike inferior mahogany, exists in numbers estimated as high as 1,500,000, and the caoba tree, somewhat similar in character, is found in vast numbers, those in the Republic being worth, it is estimated, nearly \$200,000,000. There is also a large evergreen tree known as the calaba, of which there is a great supply. Other valuable woods are plentiful.

Such forest products as tagua nuts and balata are gathered in fair quantities. The balata exported to the United States during 1916 was valued at \$466,603 and the tagua nuts at \$185,457.

SALVADOR.

INTRODUCTION.

Salvador, the smallest of the Central American Republics, occupies an area variously estimated at from 7,225 to 8,130 square miles, being comparable in size with the State of New Jersey. It is bounded on the north and northeast by Honduras, on the northwest by Guatemala, and on its other sides by the Pacific Ocean and the Gulf of Fonseca. Its population is about 1,254,000, and its capital, San Salvador, is a city of about 65,000 inhabitants. The Republic is mountainous, some of the peaks being volcanic, and topographically it may be said to be a succession of mountains, table-lands, and valleys. A number of streams, none of commercial importance, traverse the country.

DEBT AND FINANCES.

The external debt of Salvador is limited to an issue of 6 per cent bonds and a subsidy payable to the Salvador Railway (see p. 445). The 6 per cent loan was originally for £1,000,000 and was offered in British markets, during 1908, at 86 per cent. Through amortization the outstanding amount has been reduced to £756,900. The loan was originally issued to provide funds for certain important public works and to pay off internal obligations carrying a higher rate of interest. The annual sinking fund was at the rate of $2\frac{1}{2}$ per cent, cumulative, and the bonds were secured by a first charge on the special customs duty of \$3.60 United States gold per 100 kilos of imported merchandise and the duty of \$0.40 United States gold per quintal (maximum 500,000 quintals) on the annual exportation of coffee.

Following the outbreak of the war, which brought about a financial crisis, the Government found itself unable to meet its sinking-fund requirements, although the February, 1915, coupon was paid in cash and arrangements were made whereby coupons due August, 1915, and subsequently to August, 1919, were to be funded into new 7 per cent bonds, the income tax on the coupons so funded to be paid up to 2s. 6d. on the pound by the Government of Salvador. Beginning August, 1919, the annual service of £85,000 per annum on the original loan is to be resumed, this sum to be placed first to the payment of interest on the funding bonds, then to the payment of interest on the original bonds, the balance to be applied until 1927 to the redemption of the funding bonds, the issue to be finally retired during that year. Beginning 1928 the sinking fund is to be resumed on the loan of 1908. The amount of the new funding bonds to be issued semiannually was stated to be £27,707. Interest on this issue is payable February and August.

The interest on the internal debt of the Republic, owing to the financial depression, was suspended in March, 1915. This internal debt amounted to approximately 7,679,296 pesos. In order to meet the deficit arising from the decrease in customs duties and other

revenues, the Government voted for the establishment of an income tax, made various monetary and tariff reforms, and reduced expenses.

Salvadorean Government external and funding loans are quoted on the London Stock Exchange. A recent quotation (January, 1918) for the 6 per cent bonds of 1908 was 60 and for the funding bonds 78. The 6 per cent bonds may be said to offer opportunities for a semispeculative investment, inasmuch as a general improvement in conditions is being brought about.

The total debt of Salvador, as of January 1, 1916, was said to amount to 27,814,318 pesos.

BANKS.

The Republic has three local banks, the Bank of Salvador, the Occidental Bank, and the Banco Agrícola Comercial. All these banks have their head offices at San Salvador, while the Bank of Salvador and the Occidental Bank maintain branches at Ahuachapam, San Miguel, San Vicente, and Sonsonate. The capitalization of the three banks is about 6,000,000 Salvadorean pesos, and they are banks of issue. The Government has expressed its willingness to cooperate in the establishment of a foreign branch bank, which, it is stated, would greatly aid in the commercial, industrial, and agricultural development of the Republic. Ample business is stated to be available. There is a considerable business in making loans at favorable rates on coffee crops and for other agricultural purposes.

RAILWAYS.

THE SALVADOR RAILWAY.

The Salvador Railway operates 100 miles of railways in the Republic, the main line extending from Acajutla, the most important port, to San Salvador, the capital, 65 miles.

The capitalization of the company consists of £250,000 6 per cent noncumulative preference shares (par £10); £250,000 ordinary stock (par £10); £190,000 5 per cent prior lien debentures; £566,600 5 per cent mortgage debentures; £21,247 three-year deferred interest certificates.

The coupon on the 5 per cent mortgage debentures due August, 1915, was paid half in cash and half in deferred certificates; the February, 1916, coupon was paid wholly in certificates; August, 1916, and subsequent coupons were paid in cash or certificates.

In the years before the war dividends were regularly paid on the preference shares, although not always at the full rate. The ordinary shares also received frequent dividends, generally at a low rate. In 1911-12 and 1912-13 dividend payments were at the rate of 6 per cent and 2 per cent, respectively, on the preference and ordinary shares. No dividend payments were made from the profits for the year 1913-14. The Government allowed the company a subsidy of £24,000 per annum, to expire December 31, 1916. Owing to the effect of the war on the finances of the Republic, payments were suspended. The Government has agreed, however, to pay the company 5 per cent per annum on unpaid annual subsidies and to pay the subsidies at the rate of £2,000 per month following the termination of the war.

This company's ordinary shares were quoted January, 1918, at approximately 15s. per £10 share, as compared with £5 5s., the high price since 1911. Preference shares were quoted at 1½, as compared with 8½, the high price since 1911. Approximate quotations for the two classes of debentures were 89 and 42; high prices since 1911 on these two classes of securities were 102 and 87, respectively.

The Salvador Railway is the most important line in the country to-day. In normal years gross earnings amount to about \$600,000, and there are prospects that, once normal conditions are restored, business will show a sufficient increase to take care gradually of the future loss of income that will follow the termination of the subsidy. The railway becomes the property of the Government in 1974.

The company formerly operated three small steamers in the Central American coastwise service; these were disposed of in 1915 to the Royal Mail Steam Packet Co.

INTERNATIONAL RAILWAYS OF CENTRAL AMERICA.

This company has been discussed at length in the chapter on Guatemala. The Salvador section, as completed, consisted on December 31, 1916, of 98½ miles, while 18.6 miles additional were under construction and about 134 miles to be constructed. The completed section of the railway extends from La Union westward to Zacatecoluca, the center of a coffee-producing country. The railway crosses the country between San Miguel and Lempa at the foot of a chain of mountains on which are located extensive coffee plantations. At Lempa the river Lempa is crossed. At the beginning of 1917 construction work was being actively carried on beyond Zacatecoluca, the idea being to complete the line to San Vicente (15 miles) before the end of the year and to carry it on to Molineros, about 6 miles farther, early in 1918. This entire section will tap a very rich country, from which the railway has never heretofore received any traffic. San Vicente is a town of considerable size and importance.

From Molineros the line will be carried on to San Salvador, the capital (37 miles). This section will connect with further extensions that will carry the system to Santa Ana and thence to the frontier of Guatemala, where a section of the main system will be linked up and through train service established between important centers of the two Republics. A line will also be built to carry the La Union division (already constructed) to the frontier of Honduras, about 20 miles. In Honduras about 88 miles of road are to be built, between the Salvador and Nicaragua frontiers.

Earnings of the Salvador Division of the International Railways of Central America for four recent years have been as follows:

Years.	Mileage.	Gross earnings.	Ex-penses.
1913.....	62.5	\$35,369	\$62,425
1914.....	84.0	77,710	86,791
1915.....	97.5	123,882	113,697
1916.....	99.0	139,166	118,709

The cost of the Salvador Division, as carried on the books, as of December 31, 1916, was \$1,600,365. Equipment in service as of that

date consisted of 7 locomotives, 8 passenger-train cars, 97 freight-train cars, and 3 service cars.

PUBLIC WORKS AND IMPROVEMENTS.

In the memorandum furnished by the delegates for Salvador to the Pan American Financial Conference held at Washington in 1915 attention was called to certain proposed public works to be carried out whenever the monetary stringency could be relieved. Chief among these public works were the paving and laying out of a sewerage system in the municipality of San Salvador and in other cities. Some of the paving work was carried out in 1913 and 1914, but was never finished owing to lack of funds. It is believed that the Government, municipalities, and Public Utilities Commission of the Republic would be willing to guarantee jointly the financing of these enterprises.

Another undertaking projected by the Government, which will probably not be carried out in the immediate future, is the construction of a line of railway to extend from the port of La Libertad to San Salvador, the capital, about 32 miles. A concession was granted to a British company, prior to the war, to carry on the construction of this line, but all work other than a small amount of preliminary surveys, etc., was suspended following the outbreak of the war and has not been resumed.

Other enterprises, mostly municipal public-utility works, have been projected, these likewise being held up owing to existing conditions. Following the return of prosperity to the Republic there will doubtless arise excellent opportunities for construction enterprises, and a large part of the work will doubtless be handled by American contracting concerns.

MINERALS AND MINING.

Salvador is not without considerable mineral wealth, developed and undeveloped. Copper ores are known to exist in the Department of Chalatenango, near the Honduran frontier, as well as near Melapan, in the Department of Santa Ana. Some attempts at mining copper in a small way have been made, but no extensive development has been carried on.

Iron, lead, silver, and gold are also found in Salvador. Probably the most important gold mine is operated by the Butters Salvador Mines (Ltd.). This property consists of 546 acres of gold-bearing land located near Santa Rosa. The company is under Canadian management, having been incorporated in the Dominion in 1912, with a capitalization of \$750,000 (par \$5). Dividends of \$0.25 per quarter have been paid regularly since 1914, the January, 1915, dividend being accompanied by a bonus of \$0.12 per share. Profits for 1914 (latest figures obtainable) amounted to \$116,042, this being realized from ore sales amounting to \$499,911. It is said that the ore reserves of this property are nearing depletion. Another important mine under the control of somewhat similar interests is the Butters Divisadero Co., capitalized at \$750,000, owning gold and silver mines at Divisadero, Department of Morazan. This company was incorporated in 1905.

The increased price of silver will, it is expected, lead to renewed activity in this branch of mining.

Petroleum has recently been discovered in Salvador, and the field has attracted the attention of foreign capitalists. A company known as the Salvadorean Petroleum Co. has obtained a concession to work a deposit recently located on the Panalapa Plantation, in the Departments of Santa Ana and Chalatenango. British experts who have studied the petroleum fields of the Republic express the opinion that large quantities of the oil exist of a grade sufficiently high for industrial purposes, and that the industry is likely to expand rapidly.

AGRICULTURE—LIVE STOCK—FOREST RESOURCES.

The production of coffee is the staple industry of the Republic, forming usually four-fifths of the country's exports. Salvador, like Guatemala, is highly suitable for the cultivation of the product and no less than 215,000 acres are planted in coffee trees. As is the case in Guatemala, a number of foreigners (a large proportion German) have been attracted to the industry and good profits have usually been realized. The coffee crop has reached in recent years a total of more than 75,000,000 pounds. The Departments of La Libertad, Santa Ana, Ahuachapan, La Paz, Sonsonate, and Usulután produce the bulk of the crop, the last-named Department usually occupying first place.

Sugar, although a minor crop, is occupying the attention of a number of planters. The Republic contains much land suitable for its growth, and it may in time become an important product.

Tobacco, indigo, rubber, rice, and chocolate are exported in small quantities.

Although Salvador is thickly populated and the amount of grazing country necessarily limited, the cattle industry has, nevertheless, assumed importance and the Republic has for some time past been an exporter (in a small way, of course) of hides and skins. Attention is being given to the breeding of better animals, although there is still room for improvement. There is a good local demand for the beef, although up-to-date killing and packing methods are hardly known.

There are large areas of the balsam tree in Salvador, these being found in a section of the coastal belt. These balsam forests are being exploited in a limited way. Mangrove also exists, principally in swampy sections of the lowlands and along the river banks. Mahogany, cedar, rosewood, and other hardwoods are found in the interior uplands—not in large areas, however, owing to the smallness of the Republic and the fact that a very large portion of the land has been cleared for agricultural purposes.

MANUFACTURING.

The industrial development of Salvador has been very slight. Such manufacturers as do business in the Republic have little up-to-date machinery and not much skilled labor. A local cotton mill does a good business and could probably increase its output, as the amount of cotton cloth purchased from abroad is rather large. There are shoe factories, turning out a fairly creditable article, small saw-mills and furniture factories, roof and tile manufacturers, rum distilleries, and a few minor manufacturing industries that use little or no machinery, among these being soap and candle makers, clothing makers, etc.

Part 3.—THE WEST INDIES.

THE BAHAMA ISLANDS.

The group of islands known as the Bahamas contains about 4,466 square miles and a population of approximately 57,000. The islands, which are of coral formation, are numerous, some of them being uninhabited. The principal industries of the island group are timber cutting, sponge gathering, and the production of sisal hemp. The production and canning of pineapples, which are of an excellent variety, is also assuming importance as an industry, there being two canneries in operation, one of which is owned by an American company and the other by local capitalists. Practically all of the outside capital invested in the Bahamas is American.

The exports of sponges from the Bahamas now amount to practically \$800,000 per annum in value, the islands now being among the world's greatest sponge producers. The business of sponge farming is quite successful and is encouraged by the Government, which, however, is taking measures to conserve the sponges and otherwise protect the industry.

Bahama sisal hemp, thanks to high existing prices, is bringing large returns to the planters engaged in the industry. This sisal is said to equal in quality that produced in East Africa and the East Indies and is claimed to be superior to that grown in Yucatan. Mills exist in the islands for the cleaning of the hemp, although a large portion of that shipped is hand cleaned. The value of the sisal shipped in 1915 was about \$350,000, as compared with about \$230,000 the year previous. Good results were also obtained in 1916. Practically all of the sisal goes to the United States.

A large American company some time ago obtained a concession to cut yellow pine on Abaco Island and has established a large plant at Wilson City, a town founded by the company itself. It is figured that enough timber exists to last for 70 years. About 70,000 feet of yellow pine boards are sawed daily. During the year 1915 the company milled 10,179,000 feet of yellow pine, about two-thirds of which (valued at \$129,000) was exported to the United States. About 400 employees are on the pay roll of the company, which, in addition to cutting timber, owns a sawmill, ice plant, stores, etc., and a 14-mile railway, the only line in the Bahamas. Wages amount to about \$150,000 per year.

BARBADOS.

INTRODUCTION.

The island of Barbados, British West Indies, is located in latitude $13^{\circ} 4' N.$ and longitude $59^{\circ} 37' W.$, being the most easterly of the Caribbees. It is approximately 21 by 14 miles in size, with an area of 166 square miles. The population is not far from 200,000, the island therefore being one of the most densely populated in the world. Bridgetown, the capital, on Carlisle Bay, has about 25,000 inhabitants, is lighted by electricity and gas, and has a tramway system, which is expected to be electrified shortly. The rest of the population of Barbados is in small towns and villages or in the country. About 70 per cent of the total area of the island is under cultivation, sugar being the principal crop. Barbados is not a Crown Colony, being administered by its own legislative authority.

British and local capital are predominant in Barbados. Most of the bonded debt of the island is held in Great Britain. The electric lighting plant is British-owned, as are a number of the sugar plantations. The local tramway line is an American enterprise. Canada has extended its banking facilities to the island and has also invaded the insurance field. Other insurance companies are British or local.

LOANS AND FINANCES.

As in the case of other British West Indian colonies, the debt per capita of Barbados is extremely small. The loans of the colony issued prior to December 31, 1916, have been as follows:

Loans.	Original issue.	Amount in sinking fund.
$3\frac{1}{2}$ per cent loan of 1895; interest March and September 15; issued to purchase waterworks from the Bridgetown Waterworks Co. and to extend the service..	£375,000	£127,830
£3 8s. 9d. to £4 per £100 loan (1883-1904); interest January and July.....	60,000	30,100
$3\frac{1}{4}$ per cent public-works loan of 1908; interest January and July.....	12,000	.....
$3\frac{1}{4}$ per cent public-works loan of 1910; interest January and July.....	6,000	.....
4 per cent public-works loan of 1912; interest January and July.....	14,000	.....
4 per cent public-works loan of 1914; interest January and July.....	11,000	.....
$4\frac{1}{2}$ per cent school loan, 1916; interest June 30 and December 31.....	6,000	.....
5 per cent war loan repayment, 1917; interest June 30 and December 31.....	20,000	.....

All the loans have sinking-fund provisions. The $3\frac{1}{2}$ per cent loan of 1893 is listed on the London Stock Exchange and held mostly in Great Britain (see "British West Indian Bonds as Investments"). The other loans have been generally floated in Barbados.

The debts of the various parishes of Barbados totaled £3,847 as of December 31, 1916. Only one loan has been issued in the form of debentures. This loan, which is the obligation of the parish of St. Michael, was originally issued (1880-81) to the amount of £19,000,

of which £18,400 had been repaid to 1917. The interest rate is 6 per cent per annum, and the proceeds of the loan were used to erect an almshouse and to improve Queens Park, Bridgetown.

Most of the financing carried on by the colony of Barbados has been for the purpose of acquiring or developing productive public works. At the outbreak of war the colony borrowed, in the form of a bank loan, the sum of £20,000 and presented it to the Imperial Government for war purposes. The loan from the bank has been repaid from the proceeds of a 5 per cent loan issued early in 1917. Later in the same year a small loan at 5 per cent was also floated, the purpose being to develop the Barbados Light Railway. The war loan and the £6,000 school loan are the only obligations not issued for productive public works. The credit of Barbados is excellent, and revenues are generally considerably in excess of expenditures.

BANKS.

The banking facilities of the island are furnished by the Colonial Bank, which operates throughout the various islands of the British West Indies, and by the Royal Bank of Canada. The former institution issues currency in Barbados, which is acceptable as legal tender. The bank is capitalized at £2,000,000, in shares of £20, of which £600,000 (£6) is paid up. Reserve funds amount to £150,000. Twenty-one branches are located in the West Indies or British Guiana. The Government operates a savings bank which is well patronized. The Barbados Savings Bank on March 31, 1917, had 13,110 depositors, with £450,149 to their credit. The interest rate is 3 per cent, and deposits are guaranteed by the Government.

RAILWAYS.

There is at the present time one steam railway in Barbados, a narrow-gauge road about 25 miles in length, extending from Bridgetown eastward through the parishes of St. Michael, St. George, and St. Philip to the windward coast, thence northwestward to Bath (where Codrington College is located), Bathsheba, and St. Andrews. The railway is of 2-foot 6-inch gauge and laid with light rail. The operations of the line have been carried on with varying fortunes, and shortly after the outbreak of the European war traffic was suspended. In the early months of 1917 it was reopened by the Government to assist the sugar planters of central and eastern Barbados, freight service only being maintained. Passenger service was expected to be resumed during the summer. Formerly one to two trains a day were operated; the speed maintained not exceeding 15 miles an hour. The road and equipment at this writing are not in the best state of repair. The railway could readily be acquired by responsible parties, and there are many who believe that with the construction of an extension from Bridgetown northward along the leeward coast to Speightstown (12 miles) the line would pay. However, the excellence of the roads throughout Barbados, the introduction of numerous automobiles, the lack of manufacturing industries, and the smallness of the island do not afford many hopes of large returns. There are at the present time 12 stations on the railway. The former fare between Bridgetown and St. Andrews was 2s. 6d. (\$0.61) first class

and 1s. (\$0.24) third class. The price paid by the Government for the line was £20,000. A subsidy of £2,000 per annum was formerly paid to the previous owners.

PUBLIC UTILITIES.

Barbados is comparatively well supplied with public-utility enterprises. Bridgetown and its suburbs have an excellent water supply, telephone service, electric lighting and gas, and a dozen miles of tramways. Some of these services are extended to various other parts of the island.

The water supply of the island was formerly operated by the Barbados Water Supply Co. and the Bridgetown Waterworks Co. Both companies were acquired by the Government a few years ago and the service was extended throughout the various parishes. The Government, in order to make these purchases and extensions, effected the loan for £375,000 mentioned under the head of "Bonded debt." There are five important reservoirs, two with capacities of 1,000,000 gallons and upward. The entire island is piped, and there are standpipes at comparatively short distances apart.

The Barbados Electric Supply Corporation (Ltd.) is the concern supplying Bridgetown and suburbs with electricity. A description of the company is given in the Appendix (p. 533). There are more than 1,000 consumers for the electricity, and the company has the contract to light a portion of the city as well as the wharves, etc. Despite the curtailment of this public lighting on account of the war, the earnings of the company are growing steadily and it is anticipated that a fair profit will soon be earned. The shares of the enterprise are held in Great Britain.

The street railway service for Bridgetown and its suburbs is furnished by the Barbados Tramways (Ltd.), controlled by an American company. This line, at the present writing, is operated by means of mules, although before the outbreak of the war plans were made for the electrification of the system. Rails and other supplies were purchased, but the inability of the company to obtain certain necessary construction equipment compelled the temporary suspension of the work. The main line extends from Bridgetown to Hastings and St. Lawrence, 3 miles, and there are approximately 5 miles of other lines. Dividend rates on the company's stock are said to be 12 per cent per annum. The fare charged is 2 cents per half mile.

Gas and telephone services are maintained by local companies. The Barbados Telephone Co. had, it was recently stated, approximately 825 subscribers. Between 8,000 and 10,000 calls are handled daily. The total length of line in use is about 2,230 miles. The Barbados Gas Co. (Ltd.) supplies the gas that is used by a comparatively large number of consumers. The gas works are located at Bridgetown.

AGRICULTURE.

Sugar cane is the staple product of the island. The whole economic structure of Barbados is built around the sugar mill and plantation, and the ebb and flow of prosperity is almost wholly dependent on the ruling price of this product. The entire island is dotted with sugar mills, and fields of cane may be seen everywhere. The annual

average crop is 50,000 tons, and this has been steadily maintained except in years of drought. The ruling high price of sugar during 1916 and 1917 has brought back some of the past prosperity to the island. On various occasions during past years the cost of production exceeded the value of the crop and fears were expressed that the industry would be ruined. Changed conditions have greatly encouraged the planters and the future is looked forward to with optimism.

There are no Crown lands available for settlement in Barbados, and the intending settler or investor in sugar lands must purchase these lands privately. Labor is fairly plentiful and cheap, and the excellent system of roads, together with the railway, enables the planter to handle the product to market without great expense. During recent years the production of sugar has been as follows:

Years.	Hogsheads of sugar.	Puncheons of molasses.
1871.....	52,800	35,500
1891.....	50,547	32,521
1901.....	65,010	46,042
1905.....	58,863	61,398
1909.....	17,795	69,036

In 1914, 1915, and 1916 the sugar exported amounted to 29,424 tons, 29,927 tons, and 55,452 tons, respectively. The value of the sugar exported in 1916 was \$5,355,622. In 1916 99,062 gallons of rum were exported, valued at \$44,193. The exports of molasses in 1916 totaled 9,816,015 gallons, valued at \$2,655,036.

Sugar estates number 320, of which 107 have steam works. There are four rum distilleries.

Barbados is well suited for cotton growing, and a certain amount is raised annually. In 1916 137,718 pounds of raw and 5,305 pounds of linters were exported, valued at approximately \$48,000, as compared with \$83,640 in 1915. There are two cotton factories in the island. Coconuts and fruits are grown in abundance, but are mostly used locally.

MINING.

There is a manjack mine at Springvale, St. Thomas. Thirty-six persons are employed. A limited market for this product exists in the United States, the exports from the mine in 1916 amounting to \$5,339. Lime and limestone are quarried and frequently used for building purposes. A total of 29,037 bags of lime, valued at \$7,090, and 2,449 tons of limestone, valued at \$1,489, were exported in 1916.

Traces of petroleum exist, and the oil has been prospected for.

MANUFACTURING.

In addition to the gas and electric lighting plants, there are eight factories in the colony, including two cotton factories, two ice plants, two biscuit factories, one manure and chemical works, and one tobacco and one cigar and tobacco factory.

GUADELOUPE.

Guadeloupe, the largest island of the French West Indies, has an area of 722 square miles and a population of about 186,000. About one-fourth of the island is under cultivation, about one-half of this being for sugar, one-ninth for coffee, and the remainder for vanilla, limes, vegetables, etc. All industries of the island are closely related to agriculture in its various branches. The soil is extremely fertile. About five-sixths of the exports consist of sugar and its products, one-tenth of cacao, and about 7 per cent of coffee. The coffee of Guadeloupe is among the very finest produced and brings a very good price in the markets of France. Coffee planters throughout the island have, for the most part, enjoyed considerable prosperity during recent years. The cacao crop usually exceeds \$500,000 in value, and is mostly exported.

Guadeloupe has outstanding three loans (par 500 francs) originally issued as follows: (1) $3\frac{1}{2}$ per cent loan of 1898, final date of payment 1924 through sinking fund, original issue 1,200,000 francs; (2) $3\frac{1}{2}$ per cent loan of 1901, payable 1926 through sinking fund, original issue 1,500,000 francs; (3) 4 per cent loan of 1908, 1,000,000 francs, payable 1933 through sinking fund. The three issues were quoted in Paris in May, 1918, at 424, 421, and 500 francs, respectively.

There are no transportation facilities on the island other than automobiles and carriages. Water and lighting facilities are presumably ample.

Two banks exist in Guadeloupe, one of which, the Bank of Guadeloupe, is quite important. This bank has a capitalization of 3,000,000 francs, and, at the close of 1915, had deposits amounting to 2,900,639 francs. Loans and discounts totaled 5,144,786 francs, and notes in circulation 8,178,720 francs. The total deposits as above showed an increase of approximately 1,000,000 francs as compared with 1914. The bank's profits for 1915 were, however, less than in previous years, and the dividend rate for 1915 was only $2\frac{1}{2}$ per cent as compared with 4 per cent the year before. In 1916 the rate was again $2\frac{1}{2}$ per cent, and in 1917 it was 5 per cent. The 500-franc shares of the bank were quoted in Paris in May, 1918, at 425 francs.

The other bank in Guadeloupe is known as the Bank of Commerce. Its capitalization as of December 31, 1915, amounted to 300,000 francs.

JAMAICA.

INTRODUCTION.

Jamaica, Great Britain's possession among the Greater Antilles, has an area of 4,192 square miles and a population of approximately 850,000 (831,383 in 1911). About 20,000 of the inhabitants are classified as white. Kingston is the capital and largest city. Its population is upward of 60,000, and it has street railways, electric lighting, and an ample water supply. The island is largely mountainous, as high an altitude as 7,000 feet being reached.

The principal resources of Jamaica are agricultural, although there is much forest wealth and a number of deposits of minerals. Small streams, only a few of which are navigable even for rowboats, abound, and, with the ample rainfall, are of great importance to the farms and estates. The foreign commerce of the island is rather large and the United States is its best customer. The trade for 1915 and 1916 was as follows: 1915—Exports, \$10,845,796; imports, \$11,326,578. 1916—Exports, \$13,729,537; imports, \$15,120,236.

FUNDED DEBT.

A very large portion of the bonds issued by the colony of Jamaica are held in Great Britain and quoted on the London Stock Exchange. The important external loans of the colony are the following:

Loans,	Original amount.	Outstand- ing Decem- ber 31, 1916.
4½ per cent debentures of 1879	£140,000	£2,300
4 per cent debentures, 1881-82	892,000	39,500
4 per cent inscribed stock, 1892	1,099,048	1,099,048
3 per cent inscribed stock, 1897	200,000	200,000
3½ per cent inscribed stock, 1900	1,493,600	1,493,600
	3,824,648	2,834,448

The total public debt of Jamaica, as of March 31, 1915, was stated as £3,854,305, as compared with £3,735,675 as of March 31, 1905. The amount of government loans expended on public works producing revenues totals £3,081,715. Interest and other charges on account of the public debt, for the year ended March 31, 1915, amounted to £194,172 (£189,170 in 1904-5). The revenues from taxation and other sources in 1914-15 amounted to £1,154,706 (£889,992 in 1904-5) and expenditures totaled £1,221,939 (£970,675 in 1904-5).

The balance of the outstanding 4½ per cent debentures of 1879 and the 4 per cent debentures were exchanged for the 4 per cent inscribed stock of 1892. The 4 per cent debentures were originally

issued at prices slightly in excess of 97½ per cent, the average being about 98 per cent.

Of the 4 per cent inscribed stock, £918,948 was exchanged for the 4½ and 4 per cent debentures and £180,100 was sold at prices averaging in excess of 103½ per cent. Interest is payable March and September, and a cumulative sinking fund of 1 per cent that operates until 1934 will then retire the issue. The high price for this issue since January, 1911, was 105½, the price January, 1918, being 80.

The £200,000 3 per cent inscribed stock was publicly offered in 1897, the prices realized averaging about 100½. The high price since January, 1911, was 87 and the price January, 1918, was 59. Interest is payable January and July 1. A cumulative sinking fund of 1 per cent per annum will retire the issue by 1944, the government reserving the right, however, to retire the bonds in 1922, at par.

The 3½ per cent inscribed stock was issued in 1900 to the then holders of the Jamaica Railway bonds, the railway property being at that time transferred to the government (see "Railways"). Interest is payable January and July 24, and the principal is repayable at par on January 24, 1949, the government reserving the right to pay off the issue any time after January 23, 1919, on six months' notice. The high price for these bonds since January, 1911, was 97½; the price in January, 1918, was 67.

All payments on the government loans of Jamaica are made at the office of the Crown agents for the Colonies, 4 Millbank, Westminster, S. W., London, England.

BANKS.

The banking facilities of Jamaica are furnished by the British-controlled Colonial Bank, the Bank of Nova Scotia, and the Royal Bank of Canada. All these banks maintain branches in Kingston, while the Colonial Bank and the Bank of Nova Scotia have agencies at other important towns. In addition to the three privately owned banks, the government maintains a savings institution that is well patronized. There is no room at present for the establishment of additional banks in Jamaica.

The Colonial Bank, an important British institution, maintains branches in Barbados, Trinidad, and many of the Windward and Leeward Islands. The bank was incorporated in 1836 by royal charter. The subscribed capital is £2,000,000 in shares of £20, of which £600,000, or £6 per share, is paid up. Dividends paid during the past 12 years have been either 6 or 7 per cent per annum. Shares of the bank were quoted at £7 in October, 1917, comparing with £5½ at the closing of the London Stock Exchange July 27, 1914. As of June 30, 1916, the bank carried reserves to the amount of £100,000; reserves for depreciation, £50,000; to be brought forward, £43,700.

RAILWAYS.

Jamaica is traversed by a system of railways operated by and under the control of the government. This line, with its branches, covers a very large part of the island and is of considerable importance. Formerly the railway was under private ownership, and its history dates back to 1843, when the Jamaica Railway Co. was

formed by interests in the colony and England. The original prospectus was issued in 1844, the capitalization being placed at £150,000 and the par value of the shares being £5. The proposed railway was divided into three sections, and the estimated cost of the whole was to have been slightly more than £150,000.

The estimates, as made, were found to be far less than the actual cost, and the close of the year 1845 witnessed the completion of the railway only as far as a point a short distance beyond Spanish Town, the cost having exceeded £220,000.

No further construction work was carried on until 1867, when an extension was started with the idea of carrying the railway to Old Harbour, 11 miles beyond Spanish Town. This extension was opened in 1869, at a cost of £60,000. The railway as a whole did not flourish, and during 1879 the owners were glad to dispose of it to the government for the sum of £93,932. A number of improvements were made and new equipment purchased, bringing the total cost of the property to the government up to £201,260. Operations now became profitable, and it was decided in 1881 to build about 39 miles of extensions. These extensions were completed in 1885, the government having contracted a loan for £635,000 to cover the cost thereof.

During the period of the construction of extensions, surveys were made with the idea of carrying two extensions through, one to Port Antonio and the other to Montego Bay, the estimated cost to be £732,072 and £832,399, respectively. Shortly after the surveys were completed negotiations were entered into with an American syndicate, headed by Mr. Frederick Wesson, whereby the latter interests, paying the sum of £800,000, were to take over the railway and operate it. The £800,000 was declared payable £100,000 in cash and the balance in second-mortgage 4 per cent bonds. The purchasers agreed to extend the railway $12\frac{1}{2}$ miles during the first year and a half of control and $12\frac{1}{2}$ miles per annum thereafter, until the Port Antonio and Montego Bay lines had been completed. The company was privileged to authorize £1,500,000 first-mortgage bonds, £320,000 to be issued immediately and £200,000 on completion of each 25-mile extension. The government agreed to give one square mile of land for each mile of railway completed, and in fulfillment of this promise granted $116\frac{1}{2}$ square miles of territory.

The American company took over the property in 1890, and completed the extension to Montego Bay in 1894 and the Port Antonio line in 1896. In 1897-98 interest was defaulted on the first-mortgage bonds, earnings having been below expectations. In 1900 the government gave its $3\frac{1}{2}$ per cent inscribed stock in exchange for the outstanding first-mortgage bonds and again assumed control of the property. The land sold to the railway company was also repurchased for 5s. per acre, or a total of £18,500.

During 1914-15 the gross receipts of the railway totaled £179,381, as compared with £114,852 in 1904-5. Operating expenses in 1914-15 amounted to £107,265 (£89,915 in 1904-5). The net profit from operations during 1914-15 was £72,116, as compared with £24,937 in 1904-5. The cost of property to March 31, 1915, amounted to £2,666,725 (£2,476,128, Mar. 31, 1905). The total earnings on the capital investment amounted in 1914-15 to 2.7 per cent, as compared with 1 per cent in 1904-5. The average mileage operated in 1914-15 was $197\frac{1}{2}$; the mileage since that time has been slightly increased.

The United Fruit Co. owns in Jamaica 16.39 miles of railway and 9.08 miles of tramways. Six locomotives, 78 railway cars, and 30 tramway cars are in service, the railways being valued at \$99,838 and the tramways at \$49,630. These short lines are operated primarily to handle the banana traffic of the company and are not really to be classed as common carriers.

There are practically no opportunities for the establishment of additional railways in the colony.

PUBLIC UTILITIES.

The West India Electric Co., incorporated in 1897 in Jamaica and controlled in Canada, handles the electric lighting business in Kingston, Spanish Town, etc., and operates the traction lines in and suburban to Kingston. The Jamaica Light & Power Co. is also owned. The original franchise was for 30 years, with renewal privileges for 20 years.

The capitalization of the company consists of \$800,000 stock, on which dividends of 5 per cent per annum have been paid for a number of years; also \$600,000 (full authorized issue) first-mortgage gold 5 per cent bonds due 1928, with interest payable January and July at the Bank of Montreal, and secured by a first lien on the entire property.

According to the balance sheet of December 31, 1916, property and plant were valued at \$1,731,729, cash amounted to \$203,666, and all assets were carried at \$2,020,278. The surplus to profit and loss totaled \$478,144. Of the liabilities, \$100,000 represented contingent account.

There follows a statement of earnings and operating expenses:

Items.	1914	1915	1916
Earnings:			
Traction line	\$206, 870	\$184, 217	\$195, 602
Electric light	64, 582	70, 515	66, 492
Power	9, 780	11, 714	12, 958
Miscellaneous	7, 713	7, 872	11, 270
Total	288, 925	274, 318	286, 322
Operating expenses	155, 229	143, 368	144, 065
Profit on working	133, 696	130, 950	142, 257
Fixed charges	50, 326	49, 410	49, 887
Surplus	83, 370	81, 540	92, 370
Dividends on stock (5 per cent)	40, 000	40, 000	40, 000

A tax of 4 per cent of gross receipts of railways is paid annually to the government, and a rental of \$12,000 per annum is paid to the Jamaica Light & Power Co. Passenger cars in service total 44, passengers carried during 1916, 4,812,754, and mileage operated 26.

MINING.

There are numerous evidences of mineral deposits in Jamaica, but little has been done to develop them. Copper is said to occur near the middle of the island, the deposits showing veins of 3 to 4 feet in width. A small shipment of ore was made from this mine in

about the year 1855, since which time several attempts have been made to form companies to develop the properties.

In 1907 the Jamaica Consolidated Copper Co., a Maine corporation, capitalized at \$6,000,000, was organized to develop certain of the mineral properties described in the preceding paragraph. A total of 2,276 acres of land at May Pen, Clarendon, were secured. The prospectus of the company stated that "it is not general knowledge that the production of copper up to date from Haiti has been \$300,000,000." Results from operations of the Jamaica property under the management of the American company are unknown.

AGRICULTURE AND FRUIT RAISING.

Jamaica, like the other West Indian islands, is primarily agricultural. Bananas, sugar and rum, cacao, coffee, coconuts, ginger, and tobacco are exported in large amounts. A factor of great importance in the fruit industry is the United Fruit Co. The investments of this company in Jamaica were valued, as of September 30, 1917, at \$3,360,027, including land to the value of \$1,035,349; houses and buildings, \$535,329; cultivation, \$744,563; live stock, \$212,485. The acreage of improved land owned was 18,815 (16,419 on September 30, 1916) and of unimproved land 22,297 acres. In addition, 7,798 acres of improved and 13,642 acres of unimproved land were leased. The acreage under bananas amounted to 7,246, this representing about 8 per cent of the total banana acreage in the island. The area of United Fruit Co. lands under coconuts was 4,636 acres; 310 acres were under cacao, 15 under rubber, and 364 otherwise planted. In addition, about 13,826 acres were used as pasture land, the company owning in Jamaica 221 head of cattle, 936 horses and mules, and 131 miscellaneous animals.

As of March 31, 1915, 273,108 acres of land in Jamaica were under cultivation. A very large portion of the remainder was under timber. In 1915 the acreage planted with bananas was 85,854, with sugar 31,727, with coconuts 29,731, with coffee 18,750, with cacao 11,088, and with tobacco 881. It is a surprising fact that more tobacco is not raised for export. The quality equals that of the best Cuban tobacco, despite which fact cigars to the value of only \$195,846 were exported during 1915, a slight increase over 1914. Inasmuch as many of these cigars were shipped to other British West Indian Islands, there would seem to be an excellent opportunity for a far wider distribution of the product into the United States and a possible chance for the investment of capital in this field.

The increase in sugar production and the better prices obtained have greatly encouraged the planters and it is believed that the industry will show continued improvement. About 566,620 hundredweight of sugar and 1,797,913 gallons of rum were exported in 1916, as compared with 302,885 hundredweight of sugar and 1,309,103 gallons of rum in 1915. There is a strong movement in Jamaica at present in favor of the development of the sugar industry by the establishment of central factories, which give promise of a bright industrial outlook for the future.

The Blue Mountain coffee of Jamaica is of a very superior quality, and the coffee planters of the island normally enjoy considerable prosperity.

A British concern known as the Jamaica Copra & Estates (Ltd.) was registered in 1913 to acquire and develop coconut properties in the island, to export coconuts, copra, etc., and to establish factories for the manufacture of copra. About 1,000 acres of land, situated not far from Port Antonio and containing about 22,700 trees, was acquired. The authorized capitalization of this company is £50,000, in shares of 5s. par, of which £23,882 5s. has been issued. The property at last accounts was still in its development stages.

FOREST RESOURCES.

There are upward of 400,000 acres of land in Jamaica under forest, exclusive of scrub land. There are numerous hardwoods on the island, including some mahogany, rosewood, satinwood, mahoe, and other species. Under conditions such as exist in Jamaica, where labor is fairly cheap and plentiful, it has been found that sawing the logs by hand is the most profitable method to be employed in the industry. There were, at last accounts, only two sawmills in the colony, one being the property of an American concern. The capacity of this mill, which is located at St. Margarets Bay, near Port Antonio, was stated to be 10,000 feet of lumber and 10,000 shingles per day. The other sawmill is located at Kingston.

The exports of dyewoods and their products, such as logwood, logwood extract, and fustic, are annually quite large and the industry is one of the most important on the island. In 1915 the exports of these dyewood products were valued at approximately \$2,000,000. A dyewood extract factory is located at Spanish Town. This concern handles a very substantial amount of business annually. The British Dyes (Ltd.) also maintains a small factory at St. Elizabeth.

MANUFACTURING.

The following review of the slight development in the field of manufactures is reproduced from the monograph, "The West Indies as an Export Field," by Garrard Harris, special agent of the Bureau of Foreign and Domestic Commerce:

Jamaica is not in any sense a manufacturing country, nor is there any probability that it ever will be. It is chiefly a producer of raw materials of an agricultural nature, and for many years its commercial life will continue to be based on the exportation of these products, with the island depending upon outside sources for most of its necessities.

Kingston, the capital and principal city, has one match factory, one ice factory, two small ale and porter breweries, five aerated-water and "soft-drink" factories and bottling works, four cigar and cigarette factories, one fair-sized fancy-biscuit and cracker factory, a small saw and planing mill, and one tannery and leather factory that has begun the manufacture of shoes from native leather.

Port Antonio has an ice factory, a soft-drink bottling works, two factories for turning coconut meat into copra, a tannery, and two small cigar factories.

At St. Mary there is a small establishment designed to prepare bananas into "figs" or dried bananas, as well as "banana flour." As the principal market for these products was Germany, the business has been practically at a standstill since the beginning of the war. There is also a small brewery.

At St. Anns Bay there is a small establishment for the extraction of essential oils, such as orange-peel oil, etc. There is also a coffee "beneficio," where coffee is prepared for export, as well as a small gristmill for grinding native corn.

At Trelawny there is the Cassava Products Co., making starch, etc.

At Montego Bay one finds an ice factory, an aerated-water factory, and bottling works, and a small establishment making native wines and cordials.

At Savanna-la-Mar there are two aerated-water factories, a steam bakery, and another steam bakery operated in connection with one of the bottling works.

At Georges Plain there is a rice-treating plant; also a factory for extracting, treating, and bottling lime juice.

At St. Elizabeth the British Dyeworks Co. has a factory making dyes out of logwood, fustic, and the like.

At Manchester there is an aerated-water factory.

At Trout Hall, in the parish of Clarendon, there is an establishment for preparing bananas as "figs" and flour for export. It is doing a relatively small business on account of war conditions. The same concern also prepares cocoa for export. There is a similar factory at Aenon Town, in Clarendon Parish.

At Spanish Town there is a dyewood-extract factory, and at Linstead there is an electrical plant and ice-making company.

FOREIGN INVESTMENTS IN JAMAICA.

Although Jamaica is a British colony, the investments of the mother country in its enterprises are not large. Most of the capital from outside sources has originated in the United States and Canada. British investments are limited to a portion of the outstanding bonds of the colony, the branches of the Colonial Bank, and shares in some small land-development companies. The United States has become prominent in the field through the investments of the United Fruit Co. The Atlantic Fruit Co. also has land interests in the island, and there are other agricultural estates, together with forest properties, under American management. Canada has financed the local public-utility enterprise, the West India Electric Co., and also has established a number of branches of its banks. No other country has any interests of importance in the island.

The increased prices obtained for agricultural products have made Jamaica prosperous, and the improved conditions existing will doubtless prevail for a number of years.

THE LEEWARD ISLANDS.

INTRODUCTION.

The Leeward Islands, belonging to Great Britain, comprise Antigua, Dominica, St. Kitts-Nevis, Montserrat, the British Virgin Islands, and several islands of less importance. These colonies, long dormant following the collapse in the price of sugar due to the introduction of beet sugar into Great Britain, are showing indications of returning prosperity. They are healthful spots, possessing great natural beauty, and swept by the cooling trade winds. There are many opportunities in these islands for those inclined to follow agricultural pursuits in either a large or a small way, and many advantages present themselves that are not found elsewhere in the American Tropics. The outer West Indies are destined to enjoy better times, and this fact should not be overlooked. The several islands will be discussed individually.

ANTIGUA.

Antigua is located in latitude $17^{\circ} 6' N.$ and longitude $61^{\circ} 45' W.$ Its area is 108 square miles, or about two-thirds that of Barbados, and its population is about 32,000. The island has several harbors, the most important being at St. John, the principal town (population 10,000). This harbor is more than 2 miles in length and three-quarters of a mile broad, but is not of sufficient depth to provide entrance for the various mail steamers making the port. The anchorage is fairly sheltered, however, and cargo is landed in small sailing vessels. The town itself presents an appearance somewhat better than that of the average British West Indian town. The island has no rivers of importance and a somewhat lower rainfall than most of its neighbors. Droughts, however, are not frequent.

BONDED DEBT.

The debt of the island is extremely small, consisting of the following issues:

- (a) Loan of £900 due Savings Bank.
- (b) Four per cent debenture issue of 1890, for the laying out of a water system. There is a sinking fund of 1 per cent per annum provided for this issue. At present it amounts to approximately £5,300.
- (c) Four per cent debenture issue for waterworks, £1,200. Sinking fund nearly equals that amount.
- (d) Four per cent debentures of 1894, to the amount of £100,000. This is the most important issue of the island and was for the purpose of providing funds for public works and improvements, including harbor improvements. The sinking fund of 1 per cent per annum has accumulated upward of £38,000 for the ultimate redemption of the issue. The issue was quoted January, 1918, at 75-77.

Public revenues of Antigua average an amount somewhat in excess of £50,000 per annum, and expenditures are about the same. Savings-bank deposits total £47,553 (at 3 per cent). The banking facilities of the island are furnished by the Royal Bank of Canada and the Colonial Bank.

RAILWAYS AND PUBLIC UTILITIES.

There are no railways in Antigua or, in fact, in the Leeward Islands that are, properly speaking, common carriers. There are two lines between sugar plantations and factories, one operating 17 miles of 2-foot 6-inch gauge and the other $3\frac{1}{2}$ miles of 2-foot gauge line.

There are no electric lights in the towns and no tramway lines on the island. Probably after the close of the European war, when the town and harbor are once more lighted fully, there will be opportunities for the establishment of a lighting system which will not require any extensive outlay of capital.

The government controls the water and telephone systems. There are approximately 195 telephones in use in the island, with 320 miles of wires. Earnings in 1915 were £928 and expenditures £866. Calls totaled 965,994. The water supply of St. John and some 15 other towns and villages is furnished from the Body Ponds and Wallings Reservoirs, and represents an outlay, including pipes, etc., of more than £40,000.

INDUSTRIES.

The development of Antigua along agricultural lines has been confined to sugar and, in a smaller way, cotton and pineapples. Antigua pineapples are famous throughout the West Indies, but their production is declining owing to the inability to secure ships properly provided with refrigeration and storage plants.

Sugar, the production of which showed a serious decline during the years of low prices, is again supreme in Antigua. There are 71 important sugar estates on the island, occupying a little more than half of the 18,411 acres of land under cultivation (total area of island, 69,275 acres). In the year 1915 the amount of sugar exported was 11,639 tons, valued at £133,788. Molasses to the value of £18,353 was also shipped. In 1914 the crop exported totaled 15,450 tons. The 1916 crop was far larger than that in 1915, and reaped the benefits of the prevailing high prices. The 1917 crop was slightly smaller than that in 1916. There are several excellent sugar factories on the island, one of which (Gunthorpe's Central Sugar Factory) has a number of shareholders both in the colony and in Great Britain.

When sugar prices declined a few years ago the planters of Antigua turned their attention to sea-island cotton and produced an excellent quality of this. However, during recent years, the production of this article has steadily declined until 1917, when, owing to high prices, more attention was given to it.

DOMINICA.

Dominica has an area of 291 square miles and is located just north of latitude 15° and west of longitude 61° . The population of the island is only about 32,000, making it the most thinly settled of the

various Leeward and Windward Islands. It is, however, the third largest of the British West Indies. The island is very mountainous, one of its peaks reaching an altitude of 5,000 feet; only in one section, the Layou Flats, is there any considerable area of flat country. There are numerous streams and small rivers and vast forest areas containing fine specimens of hardwood timber. Roseau, lying on an open roadstead on the leeward side of the island, is the chief town and port. Its population is approximately 6,000. Prince Rupert Harbor (also on the western side of the island), on which harbor the town of Portsmouth is located, would make a much better port.

BONDED DEBT.

Dominica has outstanding three small bond issues, as follows:

(a) Five per cent debentures of 1880 to the amount of £5,000, issued for public works. There is a sinking fund that has accumulated funds to the amount of approximately £3,300.

(b) Four and one-half per cent debentures of 1888, originally issued to the amount of £30,000 to defray costs of roads and bridges. Approximately £12,000 has been accumulated to the credit of the sinking fund.

(c) Four per cent bonds of 1895, originally issued to the amount of £30,000. The sinking fund has been accumulated to the amount of approximately £9,000.

All sinking funds are accumulative at the rate of 1 per cent per annum.

During recent years the revenues of the colony have generally exceeded expenditures, usually by a substantial amount. These revenues now amount to about £50,000 per annum. Savings-bank deposits total £19,882. These bear interest at 3 per cent per annum. The Colonial Bank has a branch at Roseau.

RAILWAYS AND PUBLIC UTILITIES.

The only railway in the colony is that owned by the Dominica Forests & Sawmills (Ltd.), which was constructed to bring lumber from the estate of that company (see Appendix, p. 533) to Portsmouth. This line is 3 miles in length and of 3-foot gauge. There is a coastal steamer that normally makes weekly trips touching at the various villages and ports of the island.

Roseau is one of the few cities or towns in these islands provided with an electric lighting system, the electricity being generated by water power from one of the numerous rivers.

There is a telephone system in Dominica, operated by the Government, which provides approximately 158 telephones. There are 305 miles of wire, and 286,779 calls were handled in 1915. The rate is £5 10s. per year, and the receipts for 1915 totaled £726 and the expenses £1,015.

A substantial municipal market exists at Roseau.

INDUSTRIES.

In the early days of Dominica the principal product was coffee. It is said that in the latter part of the eighteenth century no less than \$30,000,000 worth of coffee was exported. Owing to blight,

coffee planting was abandoned and attention turned to sugar, which in turn was abandoned following the decline in sugar prices. The growing of limes then became the foremost industry, and these to-day are the staple products of the island.

During 1916 shipments of limes and lime products reached the substantial figure of £151,927, despite the fact that a disastrous hurricane destroyed, it is estimated, 117,881 barrels. During this hurricane 106,298 trees were lost or blown down. The value of limes produced during the previous year (1915) was £174,404, this crop amounting to 390,000 barrels, as compared with 388,000 barrels in 1914, 391,000 barrels in 1913, and 370,000 barrels in 1912. These limes enjoy a fairly good market outside of the island, and there is demand for a large amount of bottled Dominica lime juice (concentrated).

Cacao comes next in importance to limes and is being cultivated in increasing amounts, despite the fact that the hurricane in 1916 destroyed more than 10,000 trees. Exports of the product have not, however, reached the figures attained by lime products, totaling £17,151 in 1916, which was considerably less than in 1915.

Coconuts are also grown in fair quantities, and nutmegs form a minor crop. The island is favored by a very heavy rainfall (it is said that rain falls every day in the year in the higher mountains), and it enjoys a rather pleasant and healthful climate. The annual death rate does not average more than 22 per 1,000. There are stated to be available in the island for settlement and cultivation approximately 100,000 acres of Crown land, payment for which, in comparatively large blocks, may be extended over a period of several years. There is an upset price of 10s. per acre on these lands.

Dominica is practically covered by forest growth, and many excellent varieties of hardwood and other timbers abound. Despite this fact, very little is being done in the way of developing this field. A few years ago a British company known as the Dominica Forests & Sawmills (Ltd.) (see Appendix, p. 533) was formed to develop extensive timber areas in the vicinity of Portsmouth. A grant of 25,000 acres was secured, but thus far little has been done other than the construction of 3 miles of railway, and the company has directed its attention to the raising of limes and lime products. There are certain difficulties in the way of getting the timber out of the forests, and fair-sized amounts of capital will be required in developing undertakings of this character.

The total value of the exports of Dominica for the year 1916 was £212,301 and of imports £208,197. This is more than double the foreign trade of 10 years ago, despite the fact that the population has remained almost stationary.

Dominica is an island that certainly offers opportunities for the establishment of plantations requiring fair-sized investments.

MONTSERRAT.

Montserrat, frequently spoken of as the "Emerald Isle of the West," lies about 28 miles to the southwest of Antigua. Its area is about 33 square miles and its population 12,500. The island is extremely healthful, the death rate not exceeding 16 per 1,000. Like

most of the group, the island is mountainous, one peak reaching the altitude of 3,000 feet. Plymouth (population, 1,500) is the capital and chief port and town. It is situated on an open roadstead on the leeward or sheltered side of the island.

BONDED DEBT.

The debt of this little island consists of three small, unimportant issues—£10,000 $4\frac{1}{2}$ per cent waterworks bonds of 1893; also £200 $4\frac{1}{2}$ per cent and £900 5 per cent debentures. Sinking funds on hand are equal to about one-third of this amount. The revenues of the colony, now in excess of £12,000 per annum, are greater than expenditures.

INDUSTRIES.

Sugar has lost its importance as a crop in Montserrat, and cotton and limes now occupy the foremost positions. Cotton was produced during 1915-16 to the amount of 279,575 pounds, as compared with 289,334 in 1913-14, the year before the war. Limes and lime juice are also exported in considerable quantities, although hurricanes have on two or more occasions greatly damaged the trees. The Montserrat Lime Juice Co., of Birmingham, England (see Appendix, p. 534), is the most important concern in this field operating in the island. This company has usually been a successful dividend payer. Its shares are registered on the London Stock Exchange.

Papain, a medicine made from the pawpaw, is exported from Montserrat. This island is noted for the excellence of its pawpaws, but, owing to the perishable nature of the fruit, little market exists for their sale except to passing ships. Coconuts and bananas are also raised but not exported to any extent.

There is a fairly large central cotton factory on this island, this and a lime factory being the only important industrial establishments.

There are no public utilities or railroads, other than a government-owned waterworks and supply.

Although, as has been indicated, the island is small and not fully developed, there are few spots in the West Indies more delightful or better suited for the growth of fruits, spices, vanilla, and other products of the Tropics. The sea-island cotton that has been produced is of a most excellent variety and a future is likely to be in store for the producers. Exports of the island, barring one or two interruptions due to storms, etc., have shown a steady, consistent increase. These exports are wholly confined to agricultural products.

ST. KITTS AND NEVIS.

The islands of St. Kitts and Nevis lie to the northwest of Antigua. Their combined area is 115 square miles and the population about 50,000. The two islands, of which St. Kitts is considerably the larger, lie about 2 miles apart, although their chief towns, Basse Terre and Charlestown, are about 15 miles apart. Anguilla, a small island, is a dependency of St. Kitts and Nevis. Its area is about 35 square miles, and a portion of it is fertile. Both St. Kitts and Nevis are very fertile islands, although quite mountainous, and cultivation is carried on up the slopes to an altitude of more than 1,500 feet.

FUNDED DEBT.

The bond and debenture issues of St. Kitts-Nevis are the following:

(a) Five per cent debentures of 1886, originally issued to the amount of £3,900; sinking fund, £1,900.

(b) Four and one-half per cent waterworks bonds of 1889, issued to the amount of £8,000; sinking fund, £3,900.

(c) Four per cent inscribed stock, issued for waterworks to the amount of £8,850, and $4\frac{1}{2}$ per cent public-works bonds issued to the amount of £23,000. The joint sinking fund for these issues amounts to approximately £9,300.

(d) Four per cent debentures of 1891, issued to the amount of £23,500; sinking fund, £8,000 (approximately).

RAILWAYS AND PUBLIC UTILITIES.

There are no railways on the islands that are common carriers. In St. Kitts about 15 miles of lines exist, having been constructed to carry sugar cane to the Central Sugar Factory. The gauge of this line is 2 feet 6 inches.

There are no improved methods of lighting on either island. Presumably opportunity exists for the establishment of electric lighting at Basse Terre, following the termination of the war. At present, owing to the open nature of the harbor, but little street lighting is done. Basse Terre is somewhat better than the average British West Indian town and should readily support a small lighting company. Just previous to the outbreak of the war in 1914 arrangements had been about completed for the establishment of this lighting system. Basse Terre has a population of 8,200.

There is an excellent water supply on the island, under government supervision, as well as telephone service.

INDUSTRIES.

The largest and most important industrial enterprise of the island is the Central Sugar Factory, operated by the St. Kitts (Basse Terre) Central Sugar Factory (Ltd.), a British company. This is probably the best-equipped sugar factory in the British West Indies, and may truly be called a model in every sense. The plant was placed in operation in 1912, and during the five years of its existence has more than doubled its output. In 1917, 12,800 tons of sugar were turned out, an increase over the figures for 1916. The company is now on a dividend basis, and there is every prospect of a continuation of large returns. Probably 70 per cent of the sugar crop of St. Kitts and a portion of the Nevis crop is ground at this Central Factory. Fifteen miles of railway, docks, and other facilities are owned. A similar institution might profitably be established in Barbados.

The sugar exported from St. Kitts-Nevis during recent years has been as follows: 1901 to 1912, from 11,044 to 16,624 tons; 1913, 11,312 tons; 1914, 9,946 tons; 1915, 8,341 tons; 1916, 15,000 tons. In 1917 the exports were expected to be somewhat in excess of the 1916 figures, assuring a prosperous year for the colony. The acreage under cultivation for sugar in 1916 was computed at 7,541. This was less than the 1917 total.

The cultivation of sea-island cotton has attracted considerable attention among the planters of the two islands and their dependency, Anguilla. The exports for 1915 amounted to 736,471 pounds, of which 397,567 pounds were raised in St. Kitts, 305,154 pounds in Nevis, and 33,750 pounds in Anguilla.

The rainfall of St. Kitts in 1915 was 66.5 inches. The climate of the two islands may be called ideal, the death rate is astonishingly low, and the scenery and surroundings are beautiful. Nevis once had a white population of between 4,000 and 5,000 and contained many wealthy families. To-day there are less than 100 whites in the island, despite its beauty and potential agricultural wealth, and it is now only accessible by means of schooners and small sailing vessels running from Basse Terre. There are evidences that the island has seen its worst days and is likely to experience a period of steadily returning prosperity. For those liking the somewhat isolated life of the planter, there are no two more ideal spots than St. Kitts and Nevis.

The annual foreign trade of St. Kitts-Nevis is approximately \$2,000,000.

BRITISH VIRGIN ISLANDS.

The Virgin Islands are the most northerly and the smallest and least important among the Leeward Island group. Their area is about 50 square miles and population about 5,700, mostly peasant proprietors. The annual foreign trade of the group is less than \$100,000. The islands offer but few opportunities for the investment of foreign capital, although there are some splendid areas adaptable for the raising of coconuts. Some cotton is produced. The islands are outside the usual route of steamers, and most of the trade is carried on in small sailing ships. The islands have no bonds outstanding and no public utilities. Savings-bank (government) deposits amount to £300. A total of 1,225 acres of land are under cultivation.

SUMMARY.

The Leeward Island group has many attractions. Most of the islands are veritable paradises of natural beauty, and their soil is extremely fertile. Their only wealth, other than the timber of Dominica, is agricultural, and along agricultural lines there are certainly many opportunities. The long period of stagnation and depression that blighted the prosperity of these islands is at an end, and there seems to be every prospect that a general period of prosperity is at hand.

MARTINIQUE.

The island of Martinique, the most important of the French possessions in the Western Hemisphere, lies to the south of Dominica. The island's trade is generally far larger than that of most of its neighbors, its exports being consigned principally to France. This foreign trade for 1915 amounted to \$12,884,179, as compared with \$8,391,473 in 1914.

Martinique has outstanding two $3\frac{1}{2}$ per cent loans, issued 1899 (1,460,000 francs) and 1917 (3,000,000 francs), payable through sinking fund 1924 and 1941. The loans were quoted in Paris in May, 1917, at 420 and 402 francs per 500-franc bond.

A French institution known as the Banque de la Martinique furnishes banking facilities for the island. Its capitalization is 3,000,000 francs; reserves June 30, 1916, totaled 3,255,022 francs. A dividend of 10 per cent was paid for 1916. The rate for 1917 was 20 per cent. The 500-franc shares of the bank were quoted at 705 francs in May, 1918.

Sugar reigns supreme in Martinique, and as a result considerable wealth is being brought to the island. The value of the sugar and rum exported during the years 1913 to 1916 has been as follows: Sugar—1913, \$2,378,851; 1914, \$2,328,060; 1915, \$4,582,420; 1916, \$5,143,103. Rum—1913, \$2,234,205; 1914, \$2,598,853; 1915, \$2,904,818; 1916, \$5,522,948. A small amount of other sugar products is also exported.

Increasing attention has been given of late years to the raising of cacao, coffee, vanilla, limes, and other tropical products. The lime industry has not been a real success thus far, although during 1914 and 1915 about 200,000 trees were planted. Inasmuch as limes grow prolifically in Martinique, there is every reason to believe that the industry is capable of development. The quality of coffee produced is most excellent, and the demand for the product in France has greatly exceeded the supply. During the past three or four years a considerable number of trees have been planted, although exports are still very small.

Cacao is second in importance to sugar, upward of 500 metric tons being exported during 1915. The value of the cacao exported was \$238,606.

There are no important manufacturing industries on the island other than sugar factories. Automobiles and carriages furnish most of the necessary means of transportation throughout the island.

TRINIDAD AND TOBAGO.

TRINIDAD.

INTRODUCTION.

Trinidad, the most southerly island of the West Indies, has an area of 1,859 square miles and a population of approximately 340,000. It is rough and mountainous, containing large forest areas and numerous small unnavigable streams. Port of Spain, the capital, situated on the Gulf of Paria on the western side of the island, has a population of probably 70,000. The city is electric lighted and contains an excellent traction system. San Fernando (population about 9,500) is the second city, and there are several towns and cities of from 3,000 to 6,000 inhabitants. A very large proportion of the population is Negro and East Indian.

Trinidad has a comparatively hot climate, but is not unhealthful, although its death rate of 29 per 1,000 is somewhat higher than that of other British West Indian Islands.

The exports of Trinidad for 1913 and 1914 amounted to \$16,632,232 and \$13,075,039, respectively, and the imports to \$14,913,867 and \$14,038,266, respectively.

GOVERNMENT BONDS.

The public debt of Trinidad and Tobago, as of 1915, amounted to £1,589,593, as compared with £1,041,193 in 1905. The annual charges for the debt amount to £88,800, as compared with £58,810 in 1905. The total revenue of the colony during 1915 was £934,524 and the expenditures £990,715. The per capita debt in 1916 was £3 18s. 10½d.

The principal loans of Trinidad consist of: (1) £3,600 5 per cent debentures of 1874 and 1878 (original issue, £250,000); (2) £8,400 4 per cent debentures of 1880 and 1881 (original issue, £250,000); £972,593 4 per cent inscribed stock (original issue, £972,593); £600,000 3 per cent inscribed stock. (See "British West Indian bonds as investments," p. 480.)

The £250,000 5 per cent debentures were originally issued at and above par—£150,000 in 1874 and £100,000 in 1878. A cumulative sinking fund of 1 per cent per annum has, as stated, practically redeemed the issue.

The £250,000 4 per cent bonds were issued, £150,000 in 1880, at an average of 96 per cent, and £100,000 in 1881, at 101¾ per cent. The cumulative sinking fund of 1 per cent per annum has, as shown, redeemed practically the entire loan.

The £972,593 4 per cent inscribed stock was offered: £100,000 in 1892 at 101 or better, the price realized being approximately 102¾; £550,000 in February, 1914, at 99; £322,593 in exchange for various debentures. The bonds were quoted at 77 in January, 1918. A sinking fund of 1 per cent per annum, cumulative, will retire the issue

by March 15, 1942, and the government has the right to retire the issue at 100. Interest is payable March and September 15.

Of the £600,000 3 per cent inscribed stock, £400,000 was offered in July, 1897, at a price of approximately 98 per cent, the balance, £200,000, being sold in March, 1902, at an average price of slightly more than 93½. The January, 1918, price for bonds of the issue was 61. The interest is payable January and July 15, and a sinking fund of 1 per cent per annum, cumulative, will retire the issue on or before July 15, 1944. The entire issue may be redeemed at par at the option of the government on and after July 15, 1922.

These securities are transferable free of stamp duties, and all payments in respect to interest, etc., are made by the Crown Agents for the Colonies, 4 Millbank, Westminster, S. W., London, England.

RAILWAYS.

Railway enterprise in Trinidad had its beginning in the seventies, a 16-mile line from Port of Spain, the capital, to Arima having been completed in 1876. During the early eighties a branch was completed from St. Joseph, 7 miles from Port of Spain, to San Fernando, second city in the island, 35 miles from the capital, as well as a short line from near San Fernando to Princes Town. The Arima line was later extended to Sangre Grande, on the windward side of the island, and other branches were constructed, until a length of about 100 miles has been reached. The development of the system is illustrated in the following table:

Years.	Mileage.	Number of passengers carried.	Gross earnings.	Net earnings.	Capital invested.
1877.....	16	321,317	£18,097	£6,540	£175,472
1882.....	43½	699,767	43,337	11,079	533,363
1887.....	54½	764,580	53,949	15,734	602,638
1892.....	54½	679,453	51,841	15,198	602,638
1897.....	60½	816,317	67,116	20,860	681,559
1902.....	81½	1,030,965	82,250	28,115	881,570
1907.....	81½	1,266,501	89,695	29,234	910,390
1912.....	81½	1,387,747	107,804	41,786	932,002
1913.....	88	1,313,156	100,116	31,283	932,758
1914.....	94½	1,411,076	115,008	41,319	934,758

The gross receipts for the year 1914 were at the rate of £1,218 per mile and net earnings at the rate of £438 per mile.

In the year 1915 the gross receipts totaled £132,668, and operating expenses and capital expenses were £104,111. First-class passenger fares vary from 7½ to 9 cents a mile, according to distance; second-class rates are from 4½ to 6 cents; and third class, from 2½ to 3 cents. The railway operates a number of its trains in conjunction with local steamers that give service to a number of the coastal towns and to the oil fields and the pitch lake located at La Brea. Through rail and steamer tickets are sold. Twelve passenger trains run daily in each direction to and from Port of Spain, with additional trains on certain days. About 60 per cent of the railway's income is derived from passenger fares.

PUBLIC UTILITIES.

The most important public utility in Trinidad is operated by the Trinidad Electric Co. (Ltd.), a Canadian enterprise, incorporated

in 1899. This company in 1901 acquired the Trinidad Electric Light & Power Co., the Belmont Tramway Co. (Ltd.), and the Tramway Co. of Trinidad (Ltd.). The company, which is tax exempt under its charter, has an exclusive franchise for 30 years from 1902 in the city of Port of Spain and within a radius of 5 miles thereof. At the end of the 30-year period the government may purchase the properties at a value to be decided on by arbitration; otherwise the franchise is ipso facto extended for 20 years, and so for successive 20-year periods.

The capitalization of this company consists of \$1,164,000 shares of a total authorized issue of \$1,200,000 (par of shares \$4.80). There are also outstanding \$720,000 first-mortgage 30-year gold 5 per cent bonds due 1931, and \$29,000 7 per cent debenture notes. The property was carried as of December 31, 1916, at a valuation of \$2,072,678, and there was a credit balance to profit and loss of \$268,376. Dividends of 5 per cent per annum were maintained on the stock for a number of years up to July, 1915; no later dividends had been paid to May, 1917. The total number of passengers carried during 1916 was 3,070,733; the tramway mileage operated, 12½; passenger cars in use, 24; car mileage, 649,461; incandescent lamps, 26,433; arc lamps, 121; horsepower stationary motors, 171½. Total earnings for 1916 amounted to \$242,657, as compared with \$228,140 in 1915, \$225,873 in 1914, \$225,215 in 1913, and \$224,548 in 1912. The earnings for 1916 were derived \$126,199 from the traction lines, \$106,788 from electric lighting and power, and the remainder mostly from the ice plant. Total operating expenses for 1916 were \$137,128 (\$137,675 in 1915), and net earnings were \$105,529 (\$90,565 in 1915 and \$99,561 in 1914). The interest on bonds, \$36,000, represented the total charges, a balance for dividends remaining to the amount of \$69,529, as compared with \$54,465 in 1915, \$63,591 in 1914, and \$62,346 in 1913. The head office of the company is in the Keith Building, Halifax, Nova Scotia.

The telephone service in the colony is maintained by the Trinidad Consolidated Telephones (Ltd.), incorporated in 1909 in Trinidad to acquire the property of the Commercial Telephone Co. The number of subscribers to the service, as of June 30, 1916, was 1,220 and the number of exchanges 8. The company maintains offices at Halifax, Canada, and at Port of Spain, Trinidad, most of its directorate residing in Nova Scotia. Its authorized capitalization is \$300,000, of which \$210,000 is outstanding. An initial dividend of 3 per cent was paid in September, 1915, this rate having since been maintained each year. The funded debt consists of \$210,000 first-mortgage 6 per cent bonds, due January 1, 1939, and subject to call at 110 on any interest date. The property is carried on the balance sheet of the company at \$439,325. Gross earnings for the year ended June 30, 1916, amounted to \$56,723, as compared with \$53,281 in 1914-15, \$48,277 in 1913-14, \$44,244 in 1912-13, \$41,345 in 1911-12, and \$38,019 in 1911. Operating expenses and other deductions for 1915-16 were \$45,327 and the profits \$11,396. Dividend requirements at 3 per cent per annum are \$6,300.

PETROLEUM.

The petroleum industry in Trinidad has attained great importance during recent years and has proved a notable factor in the prosperity

of the island. In 1915 the amount exported was 14,113,855 gallons, as compared with 12,153,784 gallons in 1914, 4,295,737 gallons in 1912, and 7,000,800 gallons in 1911. The existence of this petroleum has long been known in Trinidad, but the product has been developed only during recent years. The first attempt to obtain petroleum was made by a concern known as the Merrimac Co., which began operations in 1857 near the famous "pitch lake." A depth of 280 feet was attained, and the well is still producing, but the discovery of the product in the United States, litigation, and other causes led to the abandonment of the property in 1859.

In 1866 further attempts to obtain petroleum were made by Capt. Walter Derwent at San Fernando and Aripere Estate, Oropuche. The workers were not very familiar with the methods to be followed in drilling the bore to any considerable depth, although the level of 160 feet was reached and a small amount of oil (about 60 gallons per week) secured. This well is also being operated, though in a modest way, at the present time.

In 1901 the next attempt to obtain petroleum was made, and this marked the beginning of the rapid development of the industry. The actual production during the governmental fiscal year 1915 was 36,753,931 imperial gallons. Sixty-five wells were sunk during the year, the total depth of drilling for the same period being 57,969 feet. The quality ranges from light oils, with paraffin base, to heavy asphaltic, some oils giving as high as 51 per cent spirit.

Refineries have been erected and are at work producing gasoline, lubricating and fuel oils, and kerosene, while there are immense storage tanks, docks and shipping facilities, steamers plying to world markets, pipe lines, etc. A number of wells producing upward of 30,000 barrels per day have been sunk, while in October, 1915, one well produced at the rate of 72,000 barrels per day.

The Trinidad Lake Petroleum Co., one of the important producers, sank a well in May, 1913, which at the depth of 1,900 feet began to give oil at the rate of 50,000 barrels a day, though the production subsequently declined to 20,000 barrels per day. The well was not long in operation when it caught fire, causing a considerable loss to the company. After the fire had been extinguished the well produced again, but only at the rate of 3,000 barrels per day.

A description of various oil producers and prospects in Trinidad will be found in the Appendix.

MANJACK AND ASPHALT.

Practically the only mining carried on in the colony, other than the operations of the pitch lake, is for manjack, used in making varnish, for insulation, and as an asphalt. Between 1,500 and 2,000 tons of this mineral are mined annually, the value of the production not exceeding \$35,000.

The famous pitch lake of La Brea is a valuable asset to the colony as a revenue producer. The lake is leased to a subsidiary of the General Asphalt Co., of the United States, the concession expiring in 1930. Although it is generally believed that the supply of pitch is inexhaustible, it is stated that its probable depth is 138 to 150 feet and its lease of life at the present rate of production is estimated at more than a century. The fall of the lake has approximated 4 feet

9 inches per 1,032,000 tons produced. The company's plant is equipped so that 80 tons of the asphalt may be shipped each hour. The royalty paid to the government is £14,000 per annum and a certain amount additional for each ton shipped. The revenue received by the government from asphalt shipments amounted in 1915 to \$166,330, as compared with \$180,510 in 1914. Shipments of the asphalt during recent years have been as follows: 1910, 136,595 tons; 1911, 169,127 tons; 1912, 176,077 tons; 1913, 206,414 tons; 1914, 126,453 tons; 1915, 113,645 tons.

Pitch has been found and is mined to a small extent elsewhere in Trinidad. Coal has been found but has not been developed in paying quantities.

AGRICULTURE.

It is estimated that more than 450,000 acres of land are under cultivation in Trinidad, of which about 50,000 acres are used for the raising of sugar, 325,000 for the production of cacao, 25,000 for coconuts, 13,000 for rice, 5,000 for coffee, and the rest of the acreage for miscellaneous products, such as bananas, etc. The past two or three years have witnessed good crops and excellent prices, which have had much to do with the increased prosperity of the island. In addition to the land under cultivation, there are further available 600,000 acres for agricultural development.

Sugar growing has undergone a revival since the outbreak of the war, the production for the year 1916 exceeding all records. The year's production was 64,231 tons of sugar, of which 20,890 was ground at the Usine Ste. Madeleine, 5,340 tons at the Caroni Estate, 7,559 tons at the Tennants' Mission and Southern Estates, 6,505 tons at Waterloo Estate, and the remainder at various other estates. A total of 19,226 persons are employed in the industry, including 5,766 at the Usine Ste. Madeleine, which is the central factory of the Ste. Madeleine Sugar Co. (Ltd.). This plant is located at San Fernando and is a thoroughly up-to-date one. Approximately 17 plantations are owned by the company. During recent years the sugar crops of Trinidad have been as follows: 1907, 50,564 tons; 1908, 48,933 tons; 1909, 52,972 tons; 1910, 51,950 tons; 1911, 46,718 tons; 1912, 40,936 tons; 1913, 42,331 tons; 1914, 55,488 tons; 1915, 58,822 tons; and 1916, 64,231 tons. Approximately 90 per cent of the sugar is exported, mostly to Great Britain and the United States. The government's tax on the production of sugar amounts to 4s. 4d. for every ton of 2,000 pounds; 4s. of this sum is used toward the general revenue of the colony and the balance, 4d., in aid of agriculture. There is a production tax on rum of 1d. per gallon; 91,589 gallons of this rum were exported during 1915, as compared with between 100,000 and 300,000 gallons during the 10 preceding years. The molasses production for 1915 amounted to 495,563 gallons, compared with 423,942 gallons in 1914, 339,496 gallons in 1913, and 450,068 gallons in 1912.

Although Trinidad is not a world leader in field cultivation of sugar cane, it may readily be said that its sugar factories are among the very best in the West Indies. Labor, mostly East Indian, is cheap and fairly abundant. There are approximately 53 sugar estates in the island at the present time, and although these suffered in common with other sugar estates in the British West Indies during

the long period of low prices prior to the war, they are to-day yielding substantial returns to their owners.

Cacao raising is the staple agricultural industry of the island and represents a very large investment. There are nearly 1,000 estates wholly or partly devoted to the production of cacao. This industry is stated to offer the best returns to investors in Trinidad, whether it be in the formation of new estates, the purchase of established and developed properties, or the investment in shares, interests, or obligations. Investors in cacao estates usually receive from 6 to 10 per cent and even higher on their capital outlay. This is an excellent field, but anyone entering it should be careful to have the estate valued by some thoroughly competent appraiser.

Most of the large developed cacao properties in Trinidad consist of a number of small adjoining properties that have been acquired from time to time and consolidated. It is only on rare occasions that a fully developed, well-located property comes into the market. An estate of 99 acres, which may be called the standard in Trinidad, planted at 13 feet by 13 feet and with allowances for all buildings, should contain, roughly, 22,000 trees. The cost of a plantation of such dimensions, including interest at 8 per cent during the period of nonproduction, should not greatly exceed \$15,000 and would be worth at full market value, when in bearing, practically double that figure. It usually takes 10 years before full returns may be earned on cacao investments. Profits are realized, however, at a much earlier date. Crown lands available for the production of cacao and other agricultural products may be obtained at £2 10s. per acre, including the cost of survey. The maximum acreage at this price is 99. When the area of the parcel exceeds 100 acres, the price must not be less than £5 per acre unless the Secretary of State for the Colonies authorizes a lower rate.

The exports of cacao during the past 10 years have been as follows: 1906, 246,169 hundredweight; 1907, 444,023 hundredweight; 1908, 438,724 hundredweight; 1909, 460,492 hundredweight; 1910, 516,595 hundredweight; 1911, 444,561 hundredweight; 1912, 370,765 hundredweight; 1913, 429,611 hundredweight; 1914, 516,490 hundredweight; 1915, 482,870 hundredweight. The value of the cacao exported during 1915 was \$9,065,193, an increase (owing to higher prices) of \$1,921,513. During 1916 and 1917 better results and prices were realized.

The raising of coconuts is another important industry, 114 estates being engaged wholly or largely in their production. The record crop exported during recent years was 20,602,923 during 1911. Since that year crops have averaged about 15,000,000 nuts. The 1915 crop was valued at approximately \$470,000. There is a small business in coconut oil and copra.

Other important, though relatively minor, products are rubber, bananas, and coffee. The prospects in rubber planting are said to be excellent. Small amounts of Trinidad coffee have been exported. There is a small trade in limes and lime juice. Taken as a whole, it may be said that Trinidad offers, agriculturally, greater inducements to the intending settler or investor than the majority of tropical countries. In proportion to its area it is the richest of the British West Indies in natural resources. An estimate of the total value of the agricultural products of the island during 1916 would be \$20,000,000 to \$25,000,000.

TOBAGO.

The island of Tobago lies to the northeast of Trinidad, in latitude $11^{\circ} 9'$ N. and longitude $60^{\circ} 12'$ W. The central range attains an altitude of about 1,800 feet, and in this range rise numerous small streams and watercourses. There are about 100 plantations and estates of importance in the island, the products being cacao, coconuts, rubber, and a small amount of sugar and cotton. A century or more ago Tobago was a great cotton producer, but the industry steadily declined in importance. The soil is said to be highly suitable for its cultivation and considerable quantities might be raised. Sugar, for a time the chief product of the island, long ago reached its high-water mark. The present high price of sugar has led to a slight increase in the acreage of the crop and may lead to a general revival of sugar planting. Increasing attention has been given of late to the raising of live stock, and a few cattle are being exported. Nutmegs are also being grown, Tobago being particularly suited for their growth.

Tobago is now a dependency of its neighbor Trinidad and no longer has a separate government. The population does not exceed 25,000. Scarborough, with about 800 inhabitants, located on Rockley Bay, is the capital and principal town. About two-thirds of the island remains uncultivated, and there are extensive forest areas containing fine specimens of hardwood timbers. There is no known mineral wealth.

As is the case in most of the smaller islands of the West Indies, Tobago has no manufacturing industries, and opportunities are almost wholly confined to those existing in the agricultural industry. The laws are liberal and there are considerable areas of Crown lands available for settlement. The field, however, offers little inducement for the extensive investment of capital, though estates requiring moderate investment would doubtless yield good returns.

The island has directly no bonded debt, but shares in the responsibilities of the colony of Trinidad. There are no railways and practically no public utilities. Transportation facilities are furnished by coastal steamers that ply between places of importance on this island and Trinidad. Good roads to the interior do not exist.

THE WINDWARD ISLANDS.

ST. LUCIA.

St. Lucia, one of the Windward Island group, lies to the north-west of Barbados. Its area is 233 square miles and its population approximately 50,000. Castries, the chief town, has a population of 6,000 and is located on a beautiful landlocked harbor having sufficient depth of water to accommodate very large vessels. Steamers may dock here, and for this reason the port has become important as a coaling station. The town itself is not imposing. It has few improvements other than a good water system and its population is nearly all black.

PUBLIC DEBT.

The bonded debt of St. Lucia is not large. The principal issues consist of approximately £85,479 four per cent inscribed stock, due 1919-1944 (interest February and August), and £46,900 four and one-half per cent debentures which are retireable through a sinking fund. Interest is payable on this latter issue May and November, and it is listed on the London Stock Exchange. A further description of this issue is given under the general heading "British West Indian bonds as investments" (p. 480). There is a small debt in addition to the 4 per cent inscribed stock and $4\frac{1}{2}$ per cent debenture loan, largely incurred to meet war expenses. Castries has outstanding approximately £2,510 in loans. Public revenues during 1916 amounted to approximately £65,000, a figure slightly in excess of expenditures.

RAILWAYS AND PUBLIC UTILITIES.

There are no railways on the island of St. Lucia, nor is there room for any under present conditions. Public-utility development is limited to 180 to 200 miles of telephone, a good water system, and a very substantial public market at Castries. That town is lighted by paraffin, and there is hardly an opportunity at present for electric lighting. The field is a very small one.

INDUSTRIES.

There are no manufacturing industries on the island other than a government lime-juice factory and a few sugar mills. There is little opportunity for development along these lines.

The coaling of ships forms to-day the principal industry of Castries and furnishes a livelihood to a large portion of the population. During the normal year 1913, 535 steamers were coaled at the port, taking on 117,531 tons of coal.

Approximately two-thirds of the available agricultural areas of St. Lucia are to-day under cultivation. Sugar and cacao share honors. Of the former, 4,628 tons were exported in 1915, as well as 17,000 gallons of molasses and 26,054 gallons of rum, these being valued at £89,466, as compared with £46,279 in 1914, £67,679 in 1913,

£56,000 in 1912, and £56,004 in 1911. The 1916 and 1917 crops were likewise very satisfactory and produced increased revenues to the owners of the estates. St. Lucia is very good sugar territory, and the revival in the industry is pronounced.

Cacao is second in importance among the agricultural products and has in recent years been planted in increased quantities. In 1915 a total of 18,478 hundredweight of cacao was produced, yielding £51,495. This was a slight increase over the crop for the year 1914.

Limes are being raised in increasing quantities, the 1915 crop totaling 21,363 barrels as compared with 12,765 barrels in 1914. The value of the 1915 crop was £7,312. It is claimed that 50,000 barrels and upward should easily be produced, as the soil and climate of the island are highly suitable for the growth of limes.

Coconuts head the minor crops, and the production is showing a steady annual increase. In 1911 the exports amounted to 20,280 nuts, in 1912 to 43,164 nuts, in 1913 to 80,097 nuts; in 1914, owing to the war, the exports fell off to 53,638 and in 1915 increased to 67,206. In addition, copra is shipped in small quantities. The high price of ship tonnage affects the industry. Attention is also being directed to the bay trees, and it is claimed that a most excellent variety of bay rum may be produced. It is expected that this will prove a source of revenue to the island. Other minor crops are raised in moderate amounts. The island, though mountainous, is rich agriculturally.

GRENADA.

The island of Grenada lies midway between Trinidad and St. Vincent at about latitude 12° N. Its area is 133 square miles and the population about 68,000. The annual foreign trade amounts to about \$3,000,000. St. George, the capital, has a population of about 5,500 and is beautifully located on a harbor of similar name. Although mountainous (the highest elevation is 2,750 feet), the island is intensely cultivated and extremely fertile. There are several rivers, a lake, and numerous springs.

FUNDED DEBT.

The debt of Grenada is discussed in the section "British West Indian bonds as investments" (see p. 480). The principal and only important issue of the colony consists of £123,670 4 per cent inscribed stock, retireable by sinking fund between the years 1917 and 1942. These bonds sold at a high premium before the outbreak of the war, closing July 27, 1914, at 99. In January, 1918, they were quoted at 77 per cent.

PUBLIC UTILITIES.

Tenders have been asked from time to time from the government for the installation of a lighting system in St. George and its suburbs. There is good water in the island. No railways exist, a coastal steamer operated by the Royal Mail Steam Packet Co. furnishing the necessary means of transportation to the various towns of the island, most of which are located along the coast.

INDUSTRIES.

Grenada is preeminently a producer of cacao, nutmegs, and other spices, ranking next to Trinidad among the British West Indies as

a producer of cacao. It is said that in proportion to area the island is the greatest cacao producer in the world. Exports of cacao in 1916 amounted to 77,029 bags, as compared with 62,166 bags in 1915. The amount of spices (nutmegs and mace) exported during the fiscal year 1915 was 1,674,286 pounds, as compared with 1,372,940 pounds in 1914 and 909,280 pounds in 1911. The value of the 1915 crop exported was £37,284. Cotton to the value of £10,740 was also exported.

ST. VINCENT.

St. Vincent has no public debt outstanding. There are no railways in the island, nor are there any industries in which the investing public might be interested. The island is fertile and splendidly suited for cotton raising, as well as for the production of arrowroot. Cacao is raised. Increasing attention has been given of late to the growing of coconuts, and companies with fair amounts of capital would probably make money in this field.

The island sadly lacks fertilizers, and there would perhaps be room for a plant equipped for the manufacture of cottonseed fertilizers.

St. Vincent has a population of approximately 45,000.

BRITISH WEST INDIAN BONDS AS INVESTMENTS.

In British West Indian colonial bonds and inscribed stock is to be found a class of "near at home" securities worthy of attention. The West Indian possessions of Great Britain, many of them long dormant, are feeling the benefits of the present boom in sugar. Plantations have been cleared and put in order, and more progress is to be noted than has existed at any time during the past quarter century. British Guiana, Great Britain's only South American possession, has likewise felt the effects of the rise in sugar.

The securities of the British colonies are free from all stamp taxes, and in normal times sell at very high figures. At present prices, in view of their short maturities, their yield in several instances is well above 5 per cent, and in the event of their being called for payment by sinking fund the yield and profit will be much larger. The present low prices should be noted:

Securities.	When redeemable.	Price on July 27, 1914.	1917 price.	Decline.
Antigua 4 per cent.	1919-1944	100	76	24
Barbados 3½ per cent.	1925-1942	88	68	20
British Guiana 4 per cent.	1935	99	82	17
British Guiana 3 per cent.	1923-1945	78	61	17
Grenada 4 per cent.	1917-1942	99	77	22
Jamaica 4 per cent.	1934	100	77	23
Jamaica 3½ per cent.	1919-1949	88	67	26
Jamaica 3 per cent.	1922-1944	79	62	17
St. Lucia 4 per cent.	1919-1944	98	77	21
Trinidad 4 per cent.	1917-1942	101	77	24
Trinidad 3 per cent.	1922-1944	78	61	17

The 4 per cent bonds of the island of Antigua were first offered for public subscription in the year 1894, the price being 103½. The issue is for £100,000 (\$486,650), which is practically the entire public debt of the island. A sinking fund will purchase bonds up to par from 1919 to 1944.

The 4 per cent and 3 per cent loans of the colony of British Guiana are outstanding to the amounts of £194,500 and £250,000 (\$946,535 and \$1,216,625), respectively. These issues and other securities to an aggregate amount of about £100,000 represent the total debt of the colony. The 4 per cent loan was originally issued at about 98, while the 3 per cent issue was brought out part at 96½ and part at 93. Both issues are provided with sinking funds.

The Barbados 3½ per cent loan is for £375,000 (\$1,824,940). The original offering price of this issue was 102½ per cent, which reflects the excellent credit of this island.

Grenada's 4 per cent loan is outstanding to the amount of £123,000 (\$598,580), this representing practically the entire debt of the colony.

The issue was originally brought out at about 101 and at one time sold as high as 111½. Conditions on this island are said to be much better than for some time past, and it should be able to take care of its obligations without assistance from the mother country. Sinking fund began operation in 1917 and will redeem bonds prior to 1943. Grenada has a population of about 68,000.

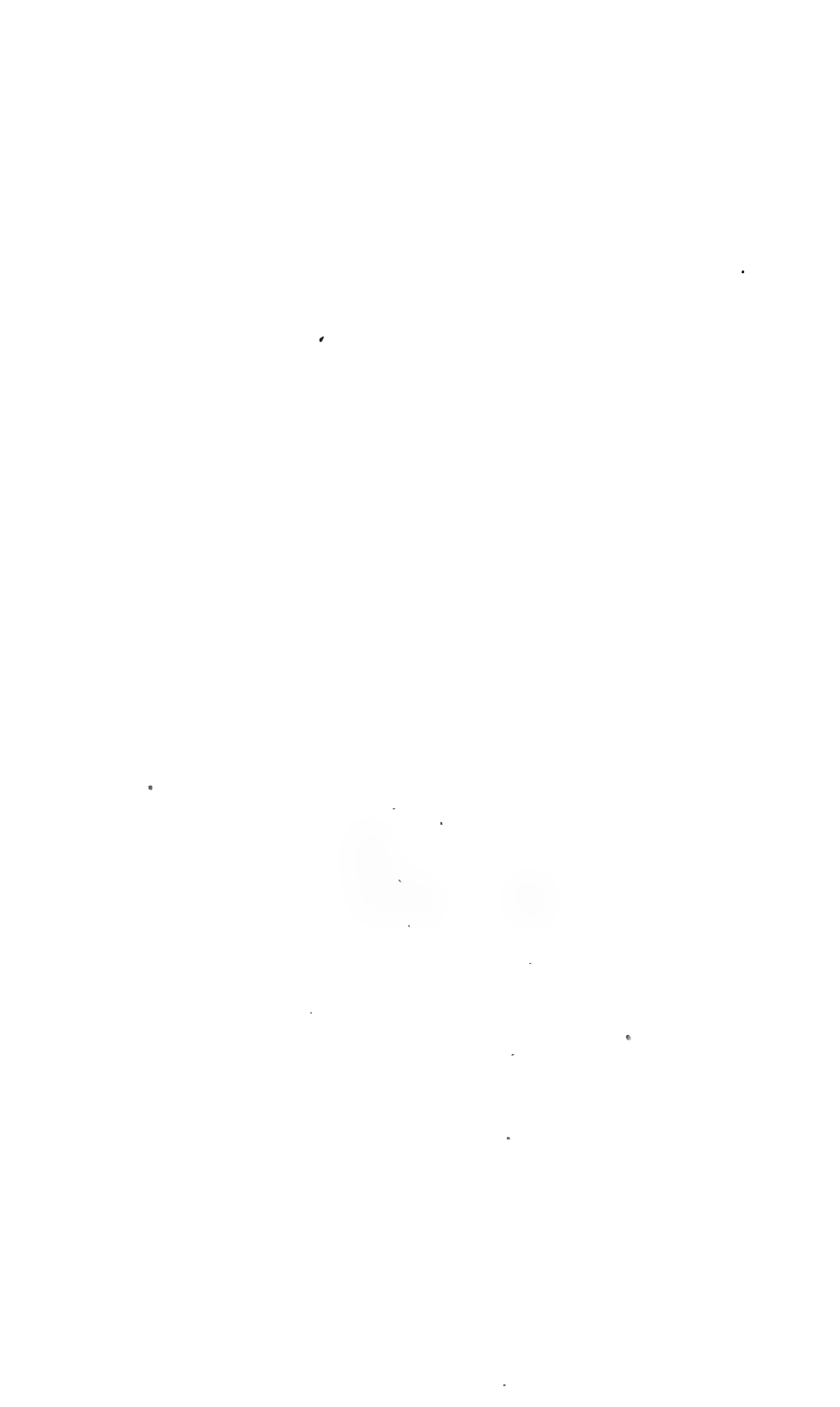
The Jamaica loans are outstanding as follows: 4 per cent, £1,099,048 (\$5,348,515); 3½ per cent, £1,493,600 (\$7,268,605); 3 per cent, £200,000 (\$973,300). The 4 per cent loan was originally subscribed for at prices averaging from 103 to 103½, and is being purchased from time to time for a sinking fund, which will keep the issue alive until its final retirement in 1934. The 3½ per cent loan was issued in 1900 to acquire the Jamaica Railway, the bonds being taken by the company's first-mortgage bondholders.

St. Lucia is enjoying prosperity now that a British West Indian coaling station has been established there. The colony's population slightly exceeds 50,000. The 4 per cent bond issue is for £85,479 (\$415,985). It was brought out at 102 and higher. St. Lucia has also a small 4½ per cent debenture issue (£49,100, or \$238,945) outstanding; these debentures may be purchased at about 90-91. They are being redeemed by a sinking fund, which buys the debentures up to par.

Trinidad, with its oil boom and increased production of sugar, is in excellent financial condition. The island, with its dependency, Tobago, has a population of approximately 360,000. Large revenues are received through royalties on asphalt, sale of Crown lands (largely to oil companies), etc. Its 4 per cent sinking fund loan (£972,500, or \$4,732,670) sold originally at 99 to 103½. The 3 per cent sinking fund loan (£600,000, or \$2,919,900) was brought out at 98. The loans have been issued for the construction of railways, roads, harbor works, and other public works.

British Honduras, England's Central American possession, has outstanding three principal loans, as follows: (1) £29,000 4½ per cent debentures of 1918-23 (sinking fund 2 per cent per annum); (2) £43,100 4 per cent 10-year debentures due 1921, issued privately in 1911 (original issue £160,000; balance converted into 4 per cent inscribed stock); (3) £116,900 4 per cent inscribed stock due 1941-71.

The Bahamas group has outstanding two small external loans, one bearing interest at 4½ per cent (£35,000 issued; £14,500 outstanding) and one at 4 per cent (£15,000 issued and outstanding). Naturally no wide market exists for these small issues.



APPENDIXES.

Appendix A.—SOUTH AMERICA.

The information contained in this and the following appendixes is designed to supplement the facts and illustrate the conclusions presented in the text of the report proper. Data are here given with regard to numerous enterprises, most of which are not discussed (to any considerable extent, at least) in the preceding pages. There are brief accounts of the companies' activities, followed, in general, by statistics of capitalization, dividends, and income, and the names of the principal officials. Quotations of securities are given in some places. It is hoped that persons interested in investments and the development of Latin-American opportunities may obtain from these statements an idea of the results that have followed the utilization of capital in certain fairly typical instances.

ARGENTINA.

ALTO PARANA DEVELOPMENT CO. (LTD.).

Registered 1912. Acquired the 600,000 pesos shares (Argentine gold) of the Sociedad Anónima Compañía de Maderas del Alto Parana. Approximately 621,000 acres of hardwood forests and 57,500 acres of pine forests in the State of Parana, Brazil, are owned, as well as a sawmill at Corrientes, Argentina. The cutting of timber is not being actively carried on at present, owing to abnormal war conditions; the only business that is being actively prosecuted is in connection with wild and cultivated yerba mate (Paraguayan tea).

Capitalization.—£330,000 6 per cent and participation noncumulative preference shares and £330,000 ordinary shares (par £1); no dividends; £300,000 of the ordinary shares were issued to acquire the shares of the Argentine company.

Income account.—Year 1914-15: Alto Parana Development Co. Interest received (net), £851; London expenses since incorporation, £1,628. Argentine company—From interest, discount, commissions, and natural yerba sales, £1,758; expenses, £10,637; debit balance to profit and loss, £33,383; losses in previous accounts in suspense, £19,167.

Directors.—James Railton, chairman; Henry J. Bell, Hon. Eric B. Butler-Henderson, A. G. Gumpert, Stephen H. M. Killik; secretary, George R. Cable, River Plate House, London, E. C. Argentine company: H. H. Leng, president; C. Lockwood, director.

Preference shares quoted in London.

ANGLO-ARGENTINE TRAMWAYS CO. (LTD.).

Registered 1877. Reconstructed and reregistered 1887.

This company operates the largest and most important tramway system in Buenos Aires and, incidentally, in South America. Prior to 1900 the lines were operated by horse system; in 1903 the work of electrification was completed. Subsequently the Buenos Aires Tramways Co. (Ltd.), Buenos Aires & Belgrano Electric Tramways Co. (Ltd.), Buenos Aires Grand National Tramways Co. (Ltd.), etc., were acquired. In 1910 this company obtained from the municipality of Buenos Aires a concession for the construction of about 20 miles of subway. The first section of this subway (6 miles) was opened in December, 1913, and additional mileage completed in 1914. Owing to the

outbreak of the war the completion of additional subway mileage has been delayed. The municipality receives 6 per cent of the gross receipts of the subway as per terms of the concession, which expires March 18, 1990. On this date the entire property reverts to the municipality without compensation.

Earnings.—The growth and expansion of this system is indicated by the following table:

Years.	Receipts.	Expenditures.	Passengers carried.
1902.....	£254,582	£191,136	27,419,188
1905.....	720,488	464,872	82,442,410
1908.....	1,262,759	790,687	142,939,805
1911.....	2,631,836	1,723,928	299,154,835
1912.....	2,778,302	1,824,021	316,260,097
1913.....	2,963,191	1,969,161	342,140,422
1914.....	2,850,995	1,880,996	322,015,254
1915.....	2,709,615	1,786,740	316,982,449

On December 31, 1915, 2,731 cars were owned, and approximately 365 miles of main line and 619 miles of track were operated in 1915.

Income account.—The income account for the year ended December 31, 1915, resulted as follows: Gross receipts, £2,709,616; operating expenses and taxes, £1,786,740; net receipts, £922,876; total net income, £986,513; interest, rental, and sinking fund, £586,642; first preference dividend, 5½ per cent, £176,000; second preference dividend, 5½ per cent, £137,500; balance carried to balance sheet, £2,289.

Capitalization.—(a) Debenture stocks, £12,007,141 outstanding:

4 per cent debenture stock, £4,465,674 authorized, £4,296,376 outstanding, largely issued in exchange for debentures of absorbed corporations; redeemable by sinking fund at not more than 102, entire issue to be redeemed by 1968; subject to call at 102 on six months' notice; £169,298 redeemed prior to December 31, 1915; interest payable June 30 and December 31.

4½ per cent debenture stock, £1,733,380 authorized, £1,710,765 outstanding, balance redeemed; due January 1, 1985; ranks subject to 4 per cent debenture stock.

5 per cent debenture stock, £6,000,000 authorized and outstanding; sinking fund commences 1916, drawings at par; subject to above issues.

(b) Stocks, £8,950,000 outstanding:

5½ per cent cumulative first preference, £4,000,000 authorized, £3,200,000 outstanding; par £5; dividends June and December.

5½ per cent cumulative second preference shares, £3,000,000 authorized, £2,400,000 outstanding; par £5; dividends June and December.

Ordinary shares, £4,000,000 authorized, £3,250,000 outstanding; par £5.

Above shares, except ordinary shares, are listed on the London Stock Exchange.

Cost of concession and other property, construction, and equipment to December 31, 1915, £19,384,972. Profit and loss credit carried forward, £94,120.

Dividends on ordinary shares.—1907, 8 per cent; 1908, 7½ per cent; 1909, 6 per cent; 1910 and 1911, 7½ per cent; 1912, 8½ per cent; 1913, 6½ per cent; 1914, 1915, and 1916, none.

Directors.—J. B. Concanon, chairman; L. Cassel, G. Cicogna, H. F. Gunning, W. F. Hamilton, K. C. J. Heaton, D. Heineman, Baron L. Janssen, G. De Laveleye, C. M. Rose, C. H. Sanford, G. A. Touche, M. P. Committee in Buenos Aires: Samuel Hale Pearson, chairman; Hugh Wilson; general manager, G. Pedriali. Office: Greslian House, London, E. C.

ARGENTINE IRON & STEEL CO. (LTD.).

Registered 1912. Acquired the brass, iron, and steel castings business of Pedro Vasena & Sons, of Buenos Aires; purchase price £953,283, £453,283 cash, balance ordinary shares; ordinary-share capital later reduced.

Capitalization.—February 28, 1915 (latest figures obtainable): Preference shares (par £1, entitled to 6 per cent per annum cumulative and 20 per cent of profits), £500,000 authorized, £500,000 outstanding; ordinary shares (par 12s., 99,770 unissued shares par £1), £459,908 authorized, £360,138 outstanding;

6 per cent first-mortgage debentures, £350,000 authorized, £321,300 outstanding (balance redeemable through sinking fund; interest on debentures March and September); total, £1,309,908 authorized, £1,181,438 outstanding.

Income account.—Year ended February 28, 1915: Profit on trading, £102,192 (£63,485 in 1913-14 and £130,363 in 1912-13); surplus, £57,171 (£19,776 in 1913-14 and £67,360 in 1912-13). Of the surplus for 1914-15, £27,171 was transferred to reserve for contingencies. Stock on hand and in transit, £448,178.

The company has reduced its floating debt from £243,159 as of February 28, 1914, to £105,816 as of February 28, 1915. Since the latter date a further reduction has taken place. Dividends of 6 per cent per annum are being paid on the preference shares.

Directors.—Señor Don Pedro Vasena, chairman; Charles Lock, vice chairman; Baron Emile Beaumont d'Erlanger, James C. Dunn, John C. Gibson, Baron Hubert de Pfeffel (Paris). Offices: Buenos Aires, Argentina; 8 Crosby Square, London, E. C.; and Paris, France.

ARGENTINE LAND & INVESTMENT CO. (LTD.).

Incorporated 1870 as the Central Argentine Land Co., to acquire the lands ceded by the Government of Argentina to the Central Argentine Railway. Reregistered 1888 under present title. Properties are owned at Las Veras, Province of Cordoba, and in the Provinces of Santa Fe and Chubut (leased to Argentine Southern Land Co.). Town and camp lands are owned, the camp lands (original concession) unsold June 30, 1915, amounting to 83,898 acres, of which 79,841 acres were located in the Province of Cordoba and 4,057 acres in Santa Fe. Lands are rented, sold, colonized, stocked with cattle, etc. The original concession is carried at a net value of £70,916; other properties at cost, £117,135; land installments unmatured and colonists' balances outstanding, £191,743; cash, £38,372; mortgage loans, £212,575; investments, £19,998.

CAPITALIZATION, JUNE 30, 1915.

Securities.	Authorized.	Outstanding.
Preference shares, 5 per cent cumulative (par £4) ^a	£520,000	£435,840
Income stock, 4 per cent.....	b 133,476	b 55,174
Ordinary shares (par £1) ^c	130,000	c 52,234
Debenture stock, 4 per cent (interest quarterly, February).....	100,000	d 9,325

^a After income stock issued is fully redeemed these shares will be entitled to 5 per cent per annum cumulative (as at present); when the ordinary shares have received 10 per cent both issues will share pro rata for further dividends.

^b Original issue £133,476 in 1906 to fund 30½ per cent arrears in preference dividends; balance retired through sinking fund.

^c 10s. paid in; balance uncalled.

^d Original issue £63,780; balance retired through sinking fund.

INCOME ACCOUNTS.

Items.	Year ended June 30—	
	1914	1915
Land sales.....	£41,592	£25,482
Rents (net).....	11,225	33,043
Interest.....	18,205	20,016
Total (including miscellaneous).....	71,449	78,750
Expenses, depreciation, etc.....	18,969	31,843
Profits.....	52,480	46,907
Interest.....	385	873
Surplus.....	52,095	46,534

Of the surplus for 1914-15, £20,000 was appropriated for reserves. After dividend payments £18,840 was carried forward. Reserves June 30, 1915, £62,208. Dividends on ordinary shares, 1911 to 1916, 5 per cent per annum.

Directors.—Charles Darbyshire, chairman; Gordon H. Brown, F. C. im Thurn, Cecil Mallet, Sir William L. Young; secretary, R. J. Parker, Palmerston House, Old Broad Street, London, E. C. General manager: Donald Fraser, Rosario, Argentina.

ARGENTINE METALS (LTD.).

Registered 1914. Owns wolfram mines, located at Pisco Yacu, Province of San Luis, Argentina. Further information not available.

Capitalization.—£10,000 10 per cent cumulative preference, £15,000 ordinary, and £5,000 deferred shares, par £1.

Secretary: C. Tomkins, 101 Leadenhall Street, London, E. C.

ARGENTINE NORTHERN LAND COMPANY (LTD.).

Registered 1908 to acquire properties of land from a company owning some 1,970 acres situated along the route of the section of the Cordoba Central Railway between Buenos Aires and Cordoba.

Capitalization.—Authorized, £500,000 shares, par £1; outstanding, £329,487,

Report for 1915 states that the net profit for the year amounts to £3,731, of which £1,100 has been placed to reserve to protect doubtful debts, leaving £2,631, as compared with £1,003 for the previous year. The profit for the year reduces the amount standing to debit of profit and loss to £7,630. The value of the land sales effected, after deducting expenses, exceeds the cost of the land sold by £7,837. Of the total area of the company's lands purchased from time to time, 2,139,819 meters have been sold or utilized for public purposes, leaving 9,304,940 meters to be disposed of. In view of this holding the directors do not consider it desirable at present to make further purchases, and consequently, as the capital released by the sale of lands is received, the funds are being employed in London in the purchase of Treasury bills. The company has already invested in this manner £8,000.

Directors.—G. W. Hoghton, chairman; L. Clow, F. Holt; secretary, J. Heath Office: 3 St. Helen's Place, London, E. C.

ARGENTINE TIMBER & ESTATES CO. (LTD.).

This company was incorporated in 1915 to take over the assets of a company with a similar title, consisting of a property of 193 square miles situated in the Province of Jujuy, Argentine Republic, mostly covered with quebracho forests. Sawmills, a tanning-extract factory, cattle, and ranching properties are also owned. About 300 men were at work on the estate in 1915. Quebracho extract is to be delivered to the Forestal Land & Timber Co. at the rate of approximately 2,500 tons per year.

Capitalization.—£15,350 ordinary shares (par 1s.); deferred shares, £21,342 (par 1s.). The ordinary shares will be entitled to 90 per cent of all profits. Approximately £90,000 6 per cent debentures have been issued, including £75,000 to the holders of debentures of former company. Interest payments began May 1, 1917.

No accounts have been published thus far.

Directors.—G. W. Hoghton, chairman; L. Clow, C. H. Thomas; secretary, E. H. Orchard. Address: 3 St. Helen's Place, London, E. C. Manager: J. B. Leahy.

ARGENTINE TOBACCO CO. (LTD.).

Incorporated 1911. Acquired during 1911 and 1912, 19 tobacco, cigar, and cigarette manufacturing companies.

CAPITALIZATION, OCTOBER 31, 1915.

Securities.	Authorized.	Outstanding.
Preference shares (par £1), entitled to a fixed cumulative dividend of 6 per cent per annum and 25 per cent of the surplus divisible profits.....	£934,919	£834,919
Ordinary shares (par 10s.), entitled to a dividend of 6 per cent per annum and 50 per cent of the surplus divisible profits.....	934,919	845,831
Deferred shares (par 1s.), entitled to 25 per cent of the surplus divisible profits.....	93,492	83,492
7 per cent first debentures, redeemable by 1920, at 105 per cent.....	650,000	646,000
Total.....	2,613,330	2,221,142

* Balance redeemed by sinking funds.

INCOME ACCOUNTS.

Items.	Year ended October 31—		
	1913	1914	1915
Profit on trading	£389,891	£386,668	£374,509
General charges in Argentina	241,239	245,080	187,238
Balance	148,652	141,608	207,271
Total, including other income	149,106	141,713	208,398
Profit after interest and other charges	105,413	103,293	156,594
Depreciation, reserves, reduction of goodwill, etc.	4,186	a 160,860	156,594
Bond sinking fund	100,000	Deferred.	Deferred.

a Includes £57,567 transferred from reserve.

Directors.—In Europe: Baron Emile B. d'Erlanger, chairman; John C. Gibson, deputy chairman; Baron Frederic A. d'Erlanger, Pierre Girod, George Kitchen, and Baron Frederic Portalis, directors. In Buenos Aires: Leon Duran, president; Victor Negri, vice president; Arturo Viader, general manager; Herman Hentsch, H. H. Long, Agustín Leon, M. Mendez de Andes, Oswaldo Testoni; secretary, T. H. Darton. Offices: 8 Crosby Square, London, E. C.

BUENOS AIRES & PACIFIC RAILWAY.

The report of the general manager states that the capital of the system administered by the Buenos Aires & Pacific Railway amounts, according to the books, to \$250,607,000 gold.

In the year 1916 the net profits amounted to \$9,638,468 gold, being an interest return of 3.85 per cent upon the capital invested. * * * But the small interest yield is not confined to the year 1916. The situation has been the same for several years past. The scale of yields, over a period of six years, has been as follows: In 1911, 4.58 per cent; in 1912, 4.37 per cent; in 1913, 4.25 per cent; in 1914, 3.23 per cent; in 1915, 4.01 per cent; and in 1916, 3.85 per cent.

The figures of the capital, the gross receipts, the working expenses, and the profits from 1910 onward, are shown in the following table:

Years.	Capital.	Gross receipts.	Working expenses.	Profit.
1910.....	\$209,440,812	\$23,298,582	\$13,344,355	\$9,954,227
1911.....	219,157,860	24,647,746	14,649,922	9,997,824
1912.....	225,399,438	25,417,396	16,547,384	9,870,012
1913.....	234,219,544	27,138,807	17,172,178	9,966,629
1914.....	238,693,900	22,014,620	14,316,756	7,697,864
1915.....	249,875,120	24,378,684	14,307,571	10,011,113
1916.....	250,607,331	24,393,584	14,756,116	9,638,468

The preceding table shows that from the year 1910 up to 1916 the figures of net profits have been maintained almost without variation, there having been no appreciable progress from one year to another, while in 1916 the amount of such profits is seen to have been less by \$316,000 gold than that obtained in 1910, notwithstanding that from that year to the present time the capital of the company has increased by \$40,000,000 gold and the length of line worked by 800 kilometers (about 500 miles).

In the economic year 1914-15 the cost of the fuel used by the company was \$2,225,500 gold. In 1915-16 the figure rose to \$2,653,367 gold, and during the year ended June 30, 1917, it had increased to \$3,276,307 gold. The cost of fuel per ton, after making the reductions necessary to arrive at its equivalence to coal, was \$9.67 gold in 1914-15, \$10.80 gold in 1915-16, and \$12.29 gold in 1916-17. The cost of fuel per train kilometer, which in the first of the years above mentioned was \$0.2035 gold, rose to \$0.2776 in 1916-17.

BUENOS AIRES SOUTHERN DOCK CO.

Registered 1898, to construct docks on the banks of the Riachuelo, Buenos Aires. The first section was completed in 1908 and the second in 1914. Valuable lands are owned. The concession is perpetual.

CAPITALIZATION.

Securities.	Authorized.	Outstanding.
Shares (par £10)	£1,000,000	£700,000
4 per cent debenture stock	1,600,000	a 1,600,000
Total	2,600,000	2,300,000

a Issued to Buenos Aires Great Southern Railway for advances made by the latter.

INCOME ACCOUNTS.

Years.	Gross receipts.	Net working receipts.	Tons handled.
1905-6	£32,105	£11,173	474,792
1910 11	87,712	48,587	852,739
1911 12	98,241	52,333	876,875
1912-13	117,819	55,355	1,122,955
1913 14	114,556	61,212	1,000,906
1914 15	79,429	39,046	810,707

NOTE.—1914 15 net revenue, £39,046; net income, £39,939; interest, £64,000; loss, £24,061. No dividends paid.

CACHEUTA OIL SYNDICATE (LTD.).

Registered 1912. Acquired options to purchase upward of 70,000 acres of petroleum-bearing lands located at Cacheuta, Province of Mendoza, Argentine Republic.

Capitalization.—£36,600 shares (par £1); total authorized, £50,000. Debentures to the amount of £1,500 are also outstanding.

Income accounts are not made public.

Directors.—W. E. H. Firman, G. C. Duffies; secretary, B. M. Allan; 34 Bishopsgate, London, E. C.

CAPILLITAS CONSOLIDATED MINES (LTD.).

Registered 1909 as a reconstruction of the Capillitas Copper Co. (Ltd.). Owns the Capillitas and Atajo groups of mines, together with smelters. The mines (area about 125,000 acres) are located in the Province of Catamarca, Argentine Republic. The ore in sight is estimated at 100,000 tons. Work has been temporarily suspended.

Capitalization.—£600,000 shares authorized (par £1); £410,660 outstanding.

Secretary: G. Hillsdon, 110 Cannon Street, London, E. C.

CATALINAS WAREHOUSES & MOLE CO (LTD.).

Registered 1897. Has issued its own securities against the debentures and shares of the Catalinas Warehouses & Mole Co., of Buenos Aires. A total of 375,322 out of 383,994 ordinary shares of the Buenos Aires company have been exchanged for the British company's securities. More than 40 warehouses are owned.

CAPITALIZATION, DEC. 31, 1915.

Securities.	Authorized.	Issued.	Outstanding.
Ordinary shares (par £2).....	£770,000	£750,644	£750,644
4 per cent preference shares (par £5).....	650,000	636,350	636,350
4 per cent mortgage debenture bonds (par £50).....	700,000	489,500	a 151,900
Total.....	2,120,000	1,876,494	1,538,894

a Balance redeemed.

NOTE.—The ordinary and preference stocks share pro rata as to dividends after 4 per cent per annum has been paid on each class.

DIVIDENDS.

	1906 to 1909	1910	1911 and 1912	1913	1914 and 1915
	Per cent.	Per cent.	Per cent.	Per cent.	
Preference.....	4	4	4	4	.....
Ordinary.....	2	2	4	a 2	.....

a Free from income tax.

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1912	1913	1914	1915
Gross receipts.....	£226,309	£196,467	£104,643	£59,808
Working expenses.....	£143,727	£129,541	£79,115	£54,656
Net receipts.....	£82,582	£66,926	£25,528	£4,952
Tonnage handled.....	541,588	486,955	211,847	152,760

To the net receipts for 1915 there was added: Interest, etc., £1,264; balance from 1914, £16,177; total, £22,394. Charges amounted to £9,140, leaving a surplus of £13,254. Cash on hand December 31, 1915, £34,926; stores, £6,891; other current assets, including £15,566 debtors for surplus lands sold (due 1916–1922), £49,608; sundry creditors, £14,261; other current liabilities, £3,593; balance to net revenue account (surplus), £13,255.

Directors.—Frank Henderson, chairman; Charles W. Parish, R. B. Polhill-Drabble, T. Penn Gaskell, F. G. Fighiera (all of Great Britain); H. H. Leng, Charles Lockwood, Dr. Juan Mendieta (Buenos Aires). General manager, D. Dallas, Buenos Aires. Secretary, G. Brown, Finsbury Pavement House, London, E. C.

CITY OF BUENOS AIRES MARKET CO. (LTD.).

Incorporated 1900 to acquire a property of about 12,300 square meters, used as a market for sale of meat, poultry, game, fish, vegetables, fruit, etc.

Capitalization.—Two million pesos (Argentine paper) shares; also £60,000 (approximately) 6 per cent debentures (of an original issue of £120,000, dated 1900). The debentures were offered for sale at 98½ per cent in 1905 by the Anglo-South American Bank, and are redeemable at par prior to July 1, 1924, by semiannual drawings (June and December).

Dividends.—Years ended August 5: 1907–8, 12 per cent; 1908–9, 14 per cent; 1909–10 and 1910–11, 17 per cent; 1911–12, 18 per cent; 1912–13 to 1914–15, 21 per cent.

Office: 2374 Calle Alsina, Buenos Aires.

CITY OF BUENOS AIRES TRAMWAYS CO. (LTD.).

Registered 1869 to construct a horse tramway system in the city of Buenos Aires. The system was later changed to electric traction. In 1904–5 the property was leased (from Jan. 1, 1905) to the Anglo-Argentine Tramways Co.

(Ltd.), until January 1, 1985. The rental amounts to £70,660 per annum, this payment being guaranteed. This annuity is equal to full interest on the debenture stock and 5 per cent dividend on the shares (see following).

Capitalization.—£1,240,000 shares (par £5); £174,000 4 per cent debenture stock due 1985, interest January and July. The debenture stock is secured by a first charge on the whole of the assets.

Directors.—J. Heaton, chairman; F. C. Crawley, secretary; E. H. Woods. Office: 1 Great Winchester Street, London, E. C.

CONSOLIDATED WATER WORKS CO. OF ROSARIO (LTD.).

This company was incorporated in 1896 to take over the properties of the Rosario Waterworks Co. (Ltd.). The concession to the company expires in 1958, at which time the properties revert to the municipality. The municipality may purchase the undertaking at an earlier date under certain conditions. The company has the exclusive privilege to supply Rosario with water. The total number of services as of December 31, 1915, was 23,790, as compared with 12,609 services as of December 31, 1905.

CAPITALIZATION DEC. 31, 1915.

Securities.	Authorized and out-standing.
Preference shares, 6 per cent noncumulative (par £10).....	£140,000
Ordinary shares (par £10).....	300,000
4 per cent debenture stock due 1930 (interest January and July).....	a 184,583
5 per cent second debenture stock due 1940 (interest January and July).....	100,000
Total.....	724,583

a Original issue £200,000; balance redeemed through sinking fund.

INCOME ACCOUNTS.

Items.	1914	1915
Gross receipts.....	£125,475	£124,403
Working expenses.....	50,339	50,628
Net receipts.....	75,136	73,785

After carrying forward from the previous year the sum of £13,728 and adding interest, and after providing for the fixed charges, such as interest, income tax, reserve fund (£12,000), depreciation, etc., for the year ended December 31, 1915, there remained the sum of £47,378. Of this amount, £8,400 was paid as a dividend on the preference shares (6 per cent) and £24,000 was paid on the ordinary shares (8 per cent). After providing £2,000 for the staff provident fund, £12,979 was carried forward to 1916. The 8 per cent dividend rate on the ordinary stock has been maintained for some years. Current assets as of December 31, 1915, were largely in excess of current liabilities.

Directors.—December 31, 1915: W. T. Western, chairman; James Anderson, W. Galwey, Ross Pinsent, F. C. im Thurn; secretary, G. Proctor, 52 Moorgate Street, London, E. C.

CORDOBA LIGHT AND POWER CO.

Incorporated in Maine, U. S. A., to produce and distribute electricity for light, etc., in the Province of Cordoba, Argentina. Concession expires 1948.

Capitalization.—\$500,000 12 per cent cumulative preferred stock and \$800,000 ordinary stock. All stock owned by Cordoba Light, Power & Traction Co. (Ltd.).

DEVELOPMENT CO. OF SANTA FE (LTD.).

Registered 1909. Acquired from the Santa Fe Land Co. (Ltd.) 416,798 acres of land situated in the Province of Santa Fe. The cost of this land was £242,144; buildings, fencings, clearing, etc., cost £23,275, and live stock cost (to June 30, 1915) £46,264 (actual value £58,700). The company's principal business is the raising of cattle, of which 12,606 head were owned as of June 30, 1915, as compared with 6,284 head owned December 31, 1913, and 4,983 head December 31, 1912; 758 horses were also owned as of June 30, 1915.

Capitalization.—Authorized, £400,000 shares (par £1); outstanding, £355,920.

There is a contingent liability of 5s. per acre in respect of 107,923 acres (south of River Salado) in the event of the construction of a railway through such area before September, 1919.

INCOME ACCOUNTS.

Items.	1912	1913	January, 1914, to June 30, 1915.
Profits.....	α £3,320	£7,649	£8,244
Expenses.....	6,673	6,620	12,131
Surplus or loss.....	—3,353	+1,029	—3,887

α No cattle sold during the year.

No dividends are paid.

Directors.—Alfred G. Gumpert, Frank W. H. Jones, Louis H. Kirk, Brig. Gen. the Hon. F. C. Stanley, D. S. O.; acting secretary, G. Slane. Address: 792 Salisbury House, London, E. C.

FORESTAL LAND, TIMBER & RAILWAYS CO. (LTD.).

Registered in England, 1906, to acquire and develop the business of a local company. Properties now owned consist of more than 4,800,000 acres of freehold land and 630,000 acres of leasehold land in the Province of Santa Fe and the Chaco, Argentina. On the properties are extensive quebracho forests, live stock, light railways, etc. Factories to manufacture tanning extracts, etc., are owned. To develop the cattle business, the company recently purchased about 5 square leagues of alfalfa land at a cost of £175,589. The company has also acquired the properties of the Argentine Quebracho Co., as well as a large factory, with additional real estate in New York, from the New York Tanning Extract Co. The American company has been incorporated as the New York Quebracho Extract Co.

CAPITALIZATION DEC. 31, 1915.

Securities.	Authorized.	Outstanding.
Preference shares (par £1), entitled to a cumulative dividend of 6 per cent per annum and 25 per cent of the surplus profits available for dividend.....	£1,612,500	£1,545,850
Ordinary shares (par £1).....	1,612,500	1,545,849
5 per cent first-mortgage refunding debentures.....	1,200,000	α 1,158,700
5 per cent mortgage debentures, 1914.....	1,200,000	α 1,186,400
Total.....	5,625,000	5,436,799

α Balance retired through sinking funds.

Reserves, £772,925; depreciation account, including sums set aside for redemption of debentures, £634,170; bills payable, etc., £760,306; cash, £351,940; treasury bills and war loan owned, £521,461; bills receivable, etc., £974,250; stores and materials, £240,692; extract and felled timber, £1,045,952; live stock, £495,949; investments at cost, £567,358; property (timber, lands, railways, etc.), £4,405,918.

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1913	1914	1915
Profits on trading, dividends, interest, etc.	£669,479	£615,114	£1,281,660
Surplus, after depreciation, reserves, interest, etc.	383,362	234,065	900,947
Special reserve for excess profits, duty, income tax, war, and other contingencies.			200,000
Preference dividend appropriation.	a 149,604	a 123,745	a 194,800
Ordinary dividend appropriation.	b 205,359	b 92,932	b 306,147
To special reserve.			200,000
For other purposes.	28,397	17,338	.....
No balance.			

a Year 1913: Paid, £148,780 (11 per cent); carried forward, £7,776. Year 1914: Paid, £123,668 (8 per cent); carried forward, £7,853. Year 1915: Paid, £185,502 (12 per cent); carried forward, £17,151.

b Year 1913: Paid, £202,881 (15 per cent); carried forward, £23,305. Year 1914: Paid, £92,750 (6 per cent); carried forward, £23,536. Year 1915: Paid, £278,253 (18 per cent); carried forward, £51,430.

Directors.—Great Britain: Baron Emile B. d'Erlanger, chairman; Joseph C. Baldwin, jr., managing; Charles E. Gunther, Louis H. Kirk, Hon. Sir Arthur Lawley, G. C. S. I., Campbell P. Ogilvie, Baron Frederic Portalis, Thomas E. Preston, Leon Rueff, Brig. Gen. the Hon. F. C. Stanley, D. S. O. In Argentina: Victor Neric, chairman; Enrique Berduc, Ernest Jewell, Thomas Lloyd, Vernon Lindop; secretary, O. J. Buxton. Office: 149 Leadenhall Street, London, E. C.

HARRODS (BUENOS AIRES) (LTD.).

This company, controlled and operated by the management of Harrods (Ltd.), of London, was incorporated 1913 to acquire general stores in Buenos Aires. Freehold land and buildings are owned in Calle Florida, Calle Paraguay, Calle San Martin, and Calle Cordoba, these properties being carried on the books at a valuation of £615,930; fixtures, fitting, plant, etc., are carried at £176,425; stocks on hand and in transit, £407,005; shares of the Sociedad Anónima Thompson Muebles (Ltd.), £118,369; and inauguration outlays, including the acquisition of good will of the business of Harrods (South America), £144,589.

Capitalization.—Preference shares, 6½ per cent cumulative (par £1), £600,000; ordinary shares, 10 per cent (par £1), £900,000; deferred shares (par 1s.), £12,000; total, £1,512,000. Mortgages on property at Buenos Aires, £82,514. Cash, bills, etc., receivable, Treasury bills, etc., £64,860; sundry creditors, £74,728.

No dividends have as yet been paid on the preference shares. After the ordinary shares have received 10 per cent the deferred shares, all of which are owned by Harrods Stores (London), are entitled to the balance.

Profits for the year ended August 31, 1915, amounted to £8,814, from which £6,467 was provided for depreciation, replacements, etc. There was a debit balance to profit and loss as of August 31, 1915, of £51,346.

Sales from August 1, 1915, to November, 1915, showed an increase of about 77 per cent.

Directors.—Sir Alfred J. Newton, Herbert Bennett, Edgar Cohen, William Mendel; managing directors, Richard Burbidge, R. W. Burbidge; secretary, R. H. Griffith, 87-135 Brompton Road, London, S. W., and Buenos Aires.

LA PLATA ELECTRIC TRAMWAYS (LTD.).

Registered 1909. Acquired the La Plata & Ensenada Tramways Co. (registered 1890), which transferred its concession, recently obtained, to the successor company. This concession provided that in return for the electrification of the lines for 10 years all provincial and municipal taxes would be waived; thereafter the company is to be taxed 4 per cent for the first five years and 5 per cent for the remaining period of the concession. The mileage operated is 33. The company, in common with nearly all of the tramway companies in Argentina, has suffered greatly on account of the war.

Capitalization.—December 31, 1915: Ordinary shares, £250,000 (par £1); preference shares, £200,000 (par £1); 5 per cent debenture stock, authorized £200,000, outstanding £100,450. The preference shares are entitled to cumulative dividends of 6 per cent per annum. After 6 per cent has been paid on the ordinary shares 19 per cent of the profits revert to the directors.

Dividends.—1909 and 1910, 6 per cent each; 1911, 6 per cent (3 per cent paid during 1911, 1½ per cent during 1912, and 1½ per cent during 1913); 1912, 3½ per cent (paid during 1913); none since.

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1913	1914	1915
Miles operated.....	29	29	30
Gross receipts.....	£62,324	£56,186	£52,821
Expenditures.....	45,252	44,273	41,455
Net receipts.....	17,072	11,913	11,365
Balance brought forward.....		330	6,614
Interest, etc.....		5,629	5,837
Surplus.....		6,614	12,142

From the surplus for 1915, £3,000 was credited to reserve fund.

Directors.—W. F. Hamilton, K. C., chairman; Sir J. S. Harmwood Banner, M. P., W. T. Weston, W. M. Wilson; secretary, H. S. M. Woodrow. Office: 52 Moorgate Street, London, E. C. Manager: Valentine Brown, La Plata, Argentina.

LEACH'S ARGENTINE ESTATES (LTD.).

Incorporated 1912. Owns properties in Argentina, including cane and alfalfa plantations, cleared lands, uncultivated lands, sugar factory, sawmills, a light railway with rolling stock, etc. Property carried on books March 31, 1915, at a valuation of £1,777,357. The total area of the property is about 500,000 acres, located in the Province of Jujuy.

CAPITALIZATION.

Securities.	Authorized.	Outstanding.
Preference shares (par £1), 6 per cent cumulative (also entitled to 25 per cent of surplus profits available for dividends).....	£500,000	£350,000
Ordinary shares (par. £1), entitled to 6 per cent noncumulative and 50 per cent of the surplus profits available for dividends.....	500,000	475,000
Deferred shares, entitled to 25 per cent of surplus profits available for dividends..	52,500	52,500
First-mortgage debentures, 5½ per cent.....	1,000,000	a 888,400
Total.....	2,052,500	1,765,900

a £950,000 issued; balance retired through sinking fund.

DIVIDENDS.

	1913	1914	1915
	Per cent.	Per cent.	Per cent.
Preference.....	6	6	6
Ordinary.....	6	6	None.

INCOME ACCOUNTS.

Items.	Year ended March 31—		
	1913	1914	1915
Profits (net).....	£146,233	£134,558	£110,223
Depreciation, interest, London expenses, fees, debenture interest, etc.....	69,442	90,768	109,751
Surplus.....	56,791	43,790	472

As of March 31, 1915, stores and materials were valued at £70,092; animals, etc., at £66,443; sugar, alcohol, and coffee, £229,498; bills receivable, etc., £243,582; cash, £67,346; bills payable, £177,952; creditors and debit balances, £507,440 (since reduced considerably); reserves, £22,790.

The sugar output has been as follows: 1912, 10,642 tons; 1913, 18,121 tons; 1914, 26,461 tons.

Directors.—William E. Leach, chairman; Baron F. A. d'Erlanger, vice chairman; John C. Gibson, Pierre Girod (Paris), Baron Frederic Portalis (Paris), Samuel Taylor (Great Britain), Walter Leach, Stephen Leach, Victor Negri (Buenos Aires); acting secretaries, T. H. Darton, W. F. Vaxley. Office: 8 Crosby Square, London, E. C.; also Paris and Buenos Aires.

PARANA LIGHT & POWER CO.

This company lights the city of Parana, Province of Entre Rios, Argentina. The city is the center of a rich grazing district and is populated largely with German, Swiss, and Italian colonists. Its population is 40,000. The property is operated by the J. G. White Co. (Ltd.) as managers. The public lighting contract expires in 1920.

Capitalization.—\$500,000 (United States gold) shares and \$295,000 debentures, all owned by the International Light & Power Co. (Ltd.).

Income account.—Year ended June 30, 1915: Net operating earnings, £11,998 (£11,317 for 1913-14); renewals, sinking fund, etc., £4,202; surplus carried to the balance sheet of the International Light & Power Co. (Ltd.), £7,796 (£6,009 for 1913-14).

Directors.—See International Light & Power Co. (Ltd.), page 536.

PATAGONIAN SHEEP FARMING CO. (LTD.).

This company was incorporated 1908 as a reconstruction of a company of a similar title and description, which was registered in 1897. Large farms and grazing areas have been acquired in the Territory of Santa Cruz, Patagonia, Argentina, and in the Territory of Magallanes, Chile. The company, which has only a limited number of shareholders, does an extensive sheep-ranching business.

Capitalization.—Ordinary shares (par £1), authorized £200,000, outstanding £180,000; £23,000 debentures were recently outstanding.

Income account.—Not made public.

Directors.—W. G. Waldron, A. Waldron, G. L. Waldron, E. J. Mathews, W. L. Woods. Office: 101 Leadenhall Street, London, E. C.

RIVER PLATE ELECTRICITY CO. (LTD.).

Incorporated 1902. Acquired properties formerly operated by the River Plate Electric Light & Traction Co., which included electric undertakings and other properties in Buenos Aires, La Plata, and Tucuman. Properties at Ensenada were also acquired. The Buenos Aires and Tucuman properties have since been disposed of, the former to the German Transoceanic Co., of Berlin, and the latter to the Tucuman Tramways, Light & Power Co. The German company paid to the River Plate Electricity Co. £150,000 5 per cent obligations, of which £138,800 remained outstanding December 31, 1915. No interest is now being paid on these obligations owing to the war. The Tucuman Tramways Co. issued to the River Plate Electricity Co., in part payment for properties acquired, £66,607 of its 5 per cent debenture stock and £21,000 shares of the Argentine Electricity Co. (Ltd.). In addition, the River Plate Electricity Co. owns debenture stock and shares of the National Tramways of La Plata, La Plata Electric Tramways, etc.

Capitalization.—£125,000 6 per cent noncumulative preference stock; £150,000 ordinary stock; £25,000 preference shares (par £1); £25,000 ordinary shares (par £1); £200,000 5 per cent debenture stock (£250,000 authorized), interest payable January and July, redeemable at company's option on six months' notice.

Income account.—Net revenue, 1915, £38,713; balance carried forward, £59,226; interest on 5 per cent debenture stock, £10,000; surplus, £49,226; preference dividend (6 per cent), £8,807; ordinary dividends (7 per cent), £12,632; provisions for bad debts and income tax, £10,000; balance, £18,387. Dividends on ordinary stock: 1906, 2½ per cent; 1907, 6 per cent; 1908, 8 per cent; 1909, 9 per cent; 1910 to 1913, 10 per cent; 1914, 8 per cent; 1915, 7 per cent. Reserves December 31, 1915, £226,898; current assets, £47,820; current liabilities, £66,917.

Directors.—M. W. Mattinson, K. C., chairman; Robert Miller, Maj. George Pringle; secretary, T. S. Hamilton, 62 New Broad Street, London, E. C.; general manager, V. Lindop, M. I. E. E., La Plata, Argentina.

RIVER PLATE TELEGRAPH CO. (LTD.).

Capitalization.—£75,000 shares, par £10, of which £42,500 is fully paid and £32,500 is £4 paid. Controlled by Western Telegraph Co. (which see).

Income account.—Not published.

Secretary: E. S. Hodson, 5 Royal Bank Place, Glasgow, Scotland.

ROSARIO DRAINAGE CO. (LTD.).

Registered 1897 to take over the assets of the Rosario City Improvement Co. (Ltd.). The company has the concession to drain the city of Rosario, this concession expiring 1974, at which time the property and works revert to the city without reimbursement. The city may purchase the undertaking at an earlier date under certain conditions.

CAPITALIZATION, JUNE 30, 1915

Securities.	Authorized.	Outstanding.
Preference shares, 6 per cent cumulative (par £10)	£120,000.	£120,000
Ordinary shares (par £1).....	374,000	369,200
5 per cent prior lien debenture stock, due 1928	150,000	a 46,000
4 per cent first debenture stock, due 1930	200,000	148,500
4 per cent second debenture stock, due 1930.....	250,000	225,720
Total.....	1,094,000	909,420

a £62,000 debentures have been issued, of which £16,000 have been retired through sinking-fund operations.

Interest on the prior lien debenture stock is payable January and July, and a sinking fund will redeem the issue at 105 by 1928. Interest on the first debenture stock is payable January and July, and interest on the second debenture stock is payable annually in October; both issues are repayable at par in 1930 and at 110 if the company decides to redeem them at an earlier date.

Dividends at the rate of 6 per cent per annum are being paid regularly on the preference shares; dividends on the ordinary shares during recent years have been as follows: 1910-11, 3 per cent; 1911-12 and 1912-13, 4 per cent; 1913-14 and 1914-15, 3 per cent.

INCOME ACCOUNTS.

Years ended June 30—	Number of house connections.	Gross revenues.	Working expenses.	Net revenues.
1906.....	3,793	£22,412	£8,471	£13,941
1910.....	5,272	37,883	10,930	26,953
1911.....	5,702	46,633	11,996	34,637
1912.....	6,134	49,359	13,108	36,252
1913.....	6,344	53,438	12,645	40,792
1914.....	6,466	56,438	12,983	43,455
1915.....	6,925	57,576	12,759	44,817

To the net revenues for 1914-15, £44,817 (as above), should be added £10,134 brought forward from 1913-14. From this total there were deducted all interest and other fixed charges, also £6,758 dividend on the cumulative preference shares, leaving a balance of £26,795. Of this balance £11,076 was appropriated for the dividend (3 per cent) on the ordinary shares and £2,500 for the reserve fund, and £13,219 was carried forward to 1916.

Directors.—James Anderson, chairman; Philip W. Carr, Follett Holt; secretary, G. Proctor, 52 Moorgate Street, London, E. C.

SANSINENA FROZEN MEAT CO. (COMPAÑÍA SANSINENA DE CARNES CONGELADAS).

Registered 1891 in Argentina to carry on a business in frozen and chilled meat, largely for export. Founded 1881. Important freezing establishments owned at Buenos Aires and Bahía Blanca. Controls the Sociedad Frigorífica Uruguaya, at Montevideo.

Capitalization.—1916 (figures in Argentine gold): Preference shares, 6 per cent cumulative, \$1,500,000 o/s (these shares are largely held in Antwerp, Belgium); ordinary shares, \$4,346,600 o/s, including \$1,346,600 o/s shares issued in 1916, of which \$450,000 o/s were issued as a special dividend on ordinary shares. A total of \$653,400 o/s ordinary shares remain unissued. In addition, \$750,456 o/s 5 per cent debentures were outstanding December 31, 1915, interest May and November, principal repayable at par on or before May 1, 1923.

Dividends.—1901, 22 per cent; 1902, 50 per cent; 1903, 12½ per cent; 1904 to 1907, 10 per cent; 1908 and 1909, 12 per cent; 1910, 15 per cent; 1911, 10 per cent; 1912 and 1913, none; 1914, 10 per cent; 1915, 10 per cent regular and 15 per cent extra (paid in stock).

INCOME ACCOUNTS.

Items.	1913	1914	1915
	<i>Argentine gold pesos.</i>	<i>Argentine gold pesos.</i>	<i>Argentine gold pesos.</i>
Credit balance forward.....	5,809	None.	25,794
Merchandise profits or losses.....	-746,966	+1,287,048	+1,464,714
Land profits.....	22,736	14,854	None.
Expenses, depreciation, etc.....	273,254	330,481	312,804
Surplus or deficit.....	-991,673	+951,421	+1,177,703

NOTE.—Reserves as of Dec. 31, 1915, 1,306,606 Argentine gold pesos.

EXPORTS OF MEAT.

	1912	1913	1914	1915
Carcasses of mutton.....	719,762	507,919	671,559	490,283
Quarters of beef.....	472,487	401,412	355,993	362,427

Officers and directors.—President, vacant December 31, 1915; vice president, Alfredo G. Luro; directors, Miles A. Pasman, Samuel Hale Pearson, Rufino F. Luro, Carlos A. Tornquist; auditor, Gmo. C. Pasman; manager, Lino Landajo; manager in Europe, W. D. Barnett. Office: 19-20 West Smithfield, London, E. C., and Calle San Martín 132, Buenos Aires.

SOCIEDAD ANÓNIMA BODEGAS ARIZU.

This company—incorporated 1907—owns extensive vineyards in the Province of Mendoza, Argentina. Distilleries are also owned.

Capitalization.—\$10,000,000 m/n (Argentine paper) authorized, \$6,000,000 m/n outstanding (par \$100 m/n); £200,000 6 per cent first-mortgage debentures authorized, £146,680 outstanding (sold at 94 per cent); sinking fund, 2 per cent per annum. Properties stated (December, 1913) to be valued at £763,508.

Income account.—Net profits, 1911, £20,161; 1912, £56,925; 1913, £38,475; 1914 (deficit), \$157,196 m/n; debit balance December 31, 1914, £255,844 m/n.

Directors.—B. Arizu, chairman; R. Mercado, J. Arizu (secretary and treasurer), F. T. Jacoby, R. W. Roberts. Office: Mendoza, Argentina.

UNITED RIVER PLATE TELEPHONE CO.

Registered 1886.

Capitalization.—Five per cent cumulative preference shares, £200,000 (par £5); ordinary shares, £1,620,000; 4½ per cent debenture stock due 2006 (callable at 105), interest January and July, £300,000; total capitalization, £2,120,000. Cost of property and real estate, £2,807,727; other (current) assets, £339,910; reserves, £925,602; credit balance to profit and loss, £128,234.

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1914	1915
Gross earnings.....	£630,652	£641,581
Operating expenses.....	455,346	447,810
Net profit.....	175,306	193,771
Interest.....	13,500	13,500
Surplus.....	161,806	180,271

In 1915 £20,000 was carried to reserve fund, £19,000 to depreciation of securities account, and £2,000 to staff provident fund.

Dividends.—Five per cent per annum is paid on preference shares; 8 per cent per annum has been paid on the ordinary shares since 1904.

Directors.—Sir George Franklin, chairman; Sir John Gavey, C. B., George Keith, Sir Frederick Green, Eustace Quilter; secretary, A. H. Dawburn. Office: 5 London Wall Buildings, Finsbury Circus, London, E. C.

QUOTATIONS AND DIVIDENDS OF SECURITIES.

The following table, taken from the Review of the River Plate, shows the quotations and dividends of securities listed on the Stock Exchange at Buenos Aires, August 30, 1917:

BANKS AND INDUSTRIAL ENTERPRISES.

Names of enterprises.	Share.		Last dividend.		Quotations Jan. 1, 1917, to Aug. 30, 1917.			Date of last quotation.
	Class.	Value.	Year ended—	Per cent.	High- est.	Low- est.	Last.	
BANKS.								
		<i>Argen- tine pesos.</i>						
Provincia de Buenos Aires.	Ord.	100m/n	Dec. 31, 1916	6½	125.00	108.00	125.00	Aug. 9, 1917
Frances del Rio de la Plata	Ord.	1000/s	Dec. 31, 1915	nil.	48.00	19.00	41.00	Aug. 30, 1917
Nuevo Italiano.	Ord.	100m/n	June 30, 1917	12	215.00	205.00	215.00	Aug. 9, 1917
Español del Rio de la Plata	Ord.	100mn	do.....	5	115.00	104.00	112.00	Aug. 30, 1917
Italia y Rio de la Plata.	Ord.	1000/s	Dec. 31, 1915	5	90.00	82.00	85.00	July 5, 1917
Galicia y Buenos Aires.	Ord.	100m/n	do.....	4	71.80	66.80	66.80	Aug. 30, 1917
El Hogar Argentino.	Deb.	100m/n	Aug. 31, 1916	8	101.00	101.00	103.00	Aug. 9, 1917
El Hogar Argentino (80 per cent paid).	Cer.	250m/n	do.....	8	160.00	135.00	140.00	Aug. 30, 1917
Comercial Italiano.	Ord.	100m/n	Dec. 31, 1915	6½	100.00	95.00	97.00	Aug. 23, 1917
Popular Argentino.	Ord.	20m/n	Apr. 30, 1916	½	27.00	25.00	26.50	Aug. 9, 1917
INDUSTRIAL ENTERPRISES.								
Azucarera Argentina.	Ord.	1000/s	Dec. 31, 1915	10	.....	.....	130.00	Nov. 11, 1915
Azucarera Tucumana.	Ord.	1000/s	Mar. 31, 1916	nil.	.....	.....	98.00	May 15, 1913
Refineria Argentina.	Ord.	1000/s	Apr. 30, 1917	6	.....	.....	97.50	Sept. 17, 1912
Sansinena Carnes Congela- das.	Ord.	1000/s	Dec. 31, 1916	25	150.00	125.00	150.00	Aug. 30, 1917
Smithfield & Argentine Meat.	Ord.	5.040/s	do.....	a 10	5.35	4.75	4.85	June 28, 1917
Mercado Central de Frutos.	Ord.	500/s	June 30, 1917	12	85.50	74.00	83.00	Aug. 9, 1917
Puerto San Nicolás.	Ord.	45m/n	do.....	nil.	26.30	15.00	24.80	Aug. 30, 1917
Muelles de la Plata.	Ord.	250/s	Dec. 31, 1915	1.6	.....	.....	18.00	Feb. 5, 1914
Catalinas Warehouses & Mole.	Ord.	10.080/s	do.....	nil.	3.00	2.50	3.00	Aug. 9, 1917
La Germania Destileria, etc.	Pfd.	1000/s	June 30, 1917	7	102.00	100.00	102.00	June 21, 1917
Do.	Ord.	1000/s	do.....	12	.....	.....	150.00	Aug. 30, 1917
Cervceria Palermo.	Ord.	100m/n	June 30, 1916	nil.	.....	.....	100.00	July 17, 1913
Cervceria Rio Segundo.	Ord.	500m/n	do.....	3	.....	.....	600.00	Oct. 10, 1912
La Martona Lecheria etc.	Ord.	1000/s	Dec. 31, 1915	"	.....	.....	35.00	June 26, 1913
Introduccion de Buenos Aires.	Ord.	1000/s	do.....	10	125.00	95.00	125.00	Aug. 23, 1917
Industrial Paraguaya.	Ord.	50/s	Feb. 28, 1916	nil.	.....	.....	2.80	Oct. 5, 1916
River Plate Quebracho Co.	Ord.	10/s	Dec. 31, 1915	nil.	1.05	.90	1.00	Aug. 9, 1917
Campos y Quebrachales	Ord.	40/s	Dec. 31, 1916	25	3.70	3.00	3.25	Aug. 30, 1917
Puerto Sastre.	Ord.	25m/n	do.....	60	93.00	67.00	93.00	Do.
Quebrachales Fusionados.	Ord.	25m/n	Dec. 31, 1915	12	.....	.....	34.00	Sept. 15, 1913

* And 5 per cent bonds.

BANKS AND INDUSTRIAL ENTERPRISES—Continued.

Names of enterprises.	Share.		Last dividend.		Quotations Jan. 1, 1917, to Aug. 30, 1917.			Date of last quotation.
	Class.	Value.	Year ended—	Per cent.	High- est.	Low- est.	Last.	
INDUSTRIAL ENTERPRISES—continued.		<i>Argentine pesos.</i>						
Guatrache Land Co.	Ord.	10.080/s	June 30, 1916	.....	.....	.....	2.20	Dec. 28, 1916
Tierras del Oeste	Ord.	20m/n	do.....	nil.	.....	.....	14.00	Aug. 2, 1917
Quebrachales Paraguayos.	Ord.	10/s	do.....	4	.....	.....	1.55	Aug. 24, 1916
Trust Alto Paraguay	Ord.	10/s	do.....	nil.	.....	.....	1.45	Aug. 23, 1917
Gas de la Plata	Ord.	100m/n	Dec. 31, 1915	2.5	.....	.....	125.00	Jan. 30, 1913
Anglo-Argentina de Electricidad.	Ord.	100m/n	July 31, 1916	nil.	.....	.....	35.00	July 26, 1917
Cia. Industrial de Electricidad.	Ord.	1000/s	Dec. 31, 1915	5	.....	.....	90.00	June 11, 1914
La Franco-Argentina de Seguros.	Ord.	50m/n	Dec. 31, 1916	16	130.00	120.00	126.00	July 12, 1917
La Edificadora	Ord.	100m/n	Mar. 31, 1916	6	75.00	71.50	72.50	Do.
Argentina de Edificación.	Ord.	100m/n	Dec. 31, 1915	nil.	39.00	34.00	33.00	Aug. 2, 1917
Primitiva de Bolsas	Ord.	100m/n	Aug. 31, 1916	30	.....	.....	235.00	Aug. 30, 1917
General de Fósforos	Ord.	100m/n	Dec. 31, 1915	25	320.00	305.00	320.00	July 12, 1917
S. A. Billetes de Banco	Ord.	100m/n	Nov. 30, 1915	nil.	.....	.....	45.00	Dec. 21, 1915
Argentina de Papel	Ord.	50m/n	Dec. 31, 1916	12	54.00	45.50	54.00	Aug. 9, 1917
Fábrica de Papel (Casati).	Ord.	100m/n	June 30, 1916	7	.....	.....	112.00	June 11, 1913
Salinas Hermanos	} Ord.	100m/n	Aug. 31, 1916	30	177.00	128.00	177.00	Aug. 30, 1917
Fábrica de Bolsas		100m/n	Apr. 30, 1917	8	.....	.....	107.00	Nov. 20, 1913
Fundición y Talleres La Unión.	Ord.	100m/n	Dec. 31, 1916	nil.	37.00	29.50	32.00	Aug. 23, 1917
La Ibero Platense	Ord.	1000/s	Feb. 28, 1916	nil.	.....	.....	138.00	May 29, 1913
Bodegas Tomba	Ord.	1000/s	Aug. 31, 1916	8	.....	.....	120.00	Dec. 16, 1915
M. S. Bagley & Cia. (Ltda.)	Ord.	1000/s	.....	.....	.....	.....	.....	.....

NATIONAL, PROVINCIAL, AND MUNICIPAL BONDS, STOCKS, AND CEDULAS.

Bonds, stocks, and cedulas.	Coupons due.	In- terest.	Sinking fund.	Quotations Jan. 1, 1917, to Aug. 30, 1917.			Date of last quotation.
				High.	Low.	Last.	
Province of Buenos Aires Internal Conversion.	Jan., July	<i>Per ct.</i> 2½	<i>Per ct.</i> 1	32.10	30.00	31.70	Aug. 30, 1917
Deuda Interna Provincia Buenos Aires.	Jan., Apr., July, Oct.	5	1	70.00	63.00	68.20	Do.
Deuda Interna Provincia Buenos Aires.	do.....	6	1	.....	.....	88.00	July 19, 1917
Deuda Interna Provincia Buenos Aires, serie 2.	do.....	6	.....	83.00	77.30	81.00	Aug. 9, 1917
Deuda Interna Provincia Buenos Aires, serie 3.	do.....	8	.....	82.00	77.00	81.90	July 26, 1917
Deuda Consolidada Interna Provincia Santa Fe.	do.....	6	1	85.50	78.00	81.00	Aug. 30, 1917
Do.	Mar., June, Sept., Dec.	6	1	.....	.....	81.10	Apr. 19, 1917
Bonos Edificación Escolar Santa Fe.	Jan., Apr., July, Oct.	7	5	.....	.....	94.00	Dec. 31, 1913
Bonos Edificación Pública Santa Fe.	do.....	7	5	.....	.....	92.50	Do.
Consolidada Provincia En- tre Rios.	do.....	5	1	.....	.....	60.00	Aug. 24, 1916
Deuda Municipal Buenos Aires.	do.....	6	1	.....	.....	95.00	May 17, 1917
Empréstito Municipal	May, Nov.	6	1	.....	.....	91.00	Aug. 24, 1916
Empréstito Municipal Teat- ro Colon.	Feb., Aug.	6	1	.....	.....	85.00	Mar. 15, 1917
Banco Provincia Buenos Aires con Obligaciones.	Jan., Apr., July, Oct.	5	½	71.00	66.20	70.20	Aug. 23, 1917
Credito Argentino Interno.	Mar., June, Sept., Dec.	5	1	90.00	87.30	89.70	Aug. 30, 1917
Do.	Feb., May, Aug., Nov.	5	1	89.70	86.80	87.20	Do.
Do. ....	.....	5	.....	.....	.....	87.00	June 21, 1917

NATIONAL, PROVINCIAL, AND MUNICIPAL BONDS, STOCKS, AND CEDULAS—Contd.

Bonds, stocks, and cedulas.	Coupons due.	In- terest.	Sink- ing fund.	Quotations Jan. 1, 1917, to Aug. 30, 1917.			Date of last quotation.
				High.	Low.	Last.	
Bonos de Edificación Escolar Provincia Buenos Aires.	Jan., Apr., July, Oct.	<i>Per ct.</i> 6	<i>Per ct.</i> 1	.....	.....	76.00	June 21, 1917
Empréstito Municipal Pavimentación.	do.....	5	1	90.00	79.00	89.50	Aug. 30, 1917
Bonos Municipales Pavimentación.	June, Dec.....	5	7	77.90	72.00	75.50	Do.
Province of Buenos Aires Loan, 3½ per cent.	Jan., July.....	3	.....	44.80	40.50	44.70	July 26, 1917
Obras de Salubridad.....	Mar., June, Sept., Dec.	5	1	.....	.....	93.50	Dec. 21, 1916
Province of Tucuman Loan.	do.....	6	4	.....	.....	89.00	Dec., 1912.
Rosario Municipal Bonds.	Jan., July.....	6	2	.....	.....	71.50	May 24, 1915
Pavimentación de Mendoza.	Apr., Oct.....	8	20	.....	.....	89.50	Dec., 1912
National Cedulas:							
Series H.....	June, Dec.....	7	1	105.00	102.00	104.00	Aug. 30, 1917
Series J.....	Feb., Aug.....	6	1	104.80	96.00	97.50	Aug. 16, 1917
Series K.....	do.....	5	1	92.00	85.00	88.30	Aug. 30, 1917
Series L.....	do.....	0	1	101.50	95.50	101.30	Do.
Cedula Argentina.....	Jan., July.....	6	1	98.80	93.10	96.30	Do.
Cedula Argentina, first series	May, Nov.....	6	1	98.60	91.00	95.50	Do.
Cedula Argentina, second series.	do.....	6	1	95.10	91.10	94.30	Do.
Bonos Hipotecarios Banco de la Provincia.	Jan., July.....	6	1	96.50	91.50	94.00	Do.

RETURNS FROM RAILWAY OPERATIONS.

The following table, taken from the Review of the River Plate, shows the returns from the operations of Argentine railways for the fiscal years ended June 30, 1916 and 1917:

Railways.	Miles open.		Last working expenses.	Returns from operations for year ended June 30—		Increase or decrease.
	1916	1917		1916	1917	
Buenos Aires Great Southern.....	3,792	3,792	<i>Per cent.</i> 57.04	£5,541,000	£5,728,000	+£187,000
Buenos Aires Pacific.....	3,535	3,535	61.16	4,645,000	4,414,000	-231,000
Central Argentine.....	3,307	3,305	58.43	5,725,000	5,237,100	-487,900
Buenos Aires Western.....	1,867	1,870	58.22	2,719,000	2,513,000	-206,000
Buenos Aires Midland.....	322	322	54.76	126,600	157,900	+31,300
Entre Rios Railways.....	831	831	54.51	613,000	641,700	+28,700
Argentine Northeastern.....	752	752	60.55	323,800	389,100	+65,300
Cordoba Central Railway system.....	1,186	1,205	71.59	1,543,991	1,562,000	+18,009
Rosario-Puerto Belgrano.....	493	493	79.77	\$m/n 2,687,200	\$m/n 2,314,700	-372,500
Province of Santa Fe.....	1,181	1,192	61.16	11,303,000	13,555,000	+2,252,000
Province of Buenos Aires.....	790	790	.....	7,865,976	8,895,798	+1,029,822
Central Northern.....	3,000	3,045	93.68	a 8,167,788	a 9,108,318	+940,530
Buenos Aires Central.....	252	252	48.50	3,328,459	3,385,142	+56,683

a For six months ended June 30.

NOTE.—Operations of the Central Railway of the Chubut Co. and of certain Government railways are not included in the above table

INCREASED WORKING EXPENSES OF RAILWAYS.

The following table from the statement of railway managers, submitted in connection with a request for rate increases (1917), shows the increase in working expenses through enhanced cost of fuel and materials in 1918 compared with and on the basis of the traffic movement during the financial year 1912-13:

Items.	Tons.	Price per ton.	Total cost.	Increase in expenses.
FUEL.				
Consumption and cost during financial year 1912-13.....	138,051	\$m/n 28. 84	\$m/n 3,429,091	\$m/n
Present cost, assuming same traffic and consumption as in 1912-13.....	138,051	78. 68	10,861,853	7,432,762
MATERIALS.				
Total cost of materials used on revenue account during financial year 1912-13.....			3,005,236	
Present cost of materials placed in Buenos Aires, representing increase of 107 per cent over prices ruling in 1912-13.....			6,220,839	3,215,603
Total increase in expenses.....				10,648,365

BOLIVIA.

ANGLO-BOLIVIAN RUBBER ESTATE (LTD.).

Registered 1910 to acquire a large rubber estate (900,000 acres) located in the province of Valasco, Bolivia.

Capitalization.—Authorized, £62,500; outstanding, £55,677; par, 1s.

Report for year ended June 30, 1915 (published December, 1915), stated that a profit of £2,438 was earned and that a dividend of 2½ per cent was paid. In 1917 the dividend rate was 12½ per cent.

Directors.—W. R. Gaff, chairman; A. Gray Wallis, A. B. Shaw, James Greenless. Office: 54 New Broad Street, London, E. C.

ARAMAYO FRANCKE MINES (LTD.).

Registered 1906 to acquire mining properties at Tupiza, Bolivia, as well as mines, metallurgical works, etc., situated in north and south Chichas, Bolivia. The cost of these properties was £494,090 in fully paid shares. In 1908 properties covering the Chorolque Mountain were acquired for £139,999 cash. Tin is the principal product, although silver, bismuth, copper, and wolfram are mined. Tin production: 1910-11, 3,818 tons; 1911-12, 4,105 tons; 1912-13, 3,694 tons; 1913-14, 3,442 tons; 1914-15, 2,060 tons; 342 tons of copper matte were sold in 1913-14 and 111 tons in 1914-15.

Capitalization.—£600,000 shares (par £1); £100,000 6 per cent debentures were issued 1909 but have been practically all redeemed. Shares sold in 1914, high 1½, low 1¼; in 1915, high 1½, low 1.

Dividends.—1910-11, 12½ per cent; 1911-12, 15 per cent; 1912-13, 17½ per cent; 1913-14, 19 per cent; 1914-15, 7½ per cent; 1915-16, 10 per cent; 1916-17, 30 per cent.

The report for the year ended May 31, 1915, indicated a loss of £36,444 after £20,000 was provided with which to redeem debentures. In addition, £44,783 dividends were paid from credit balance forward. The credit balance to be carried forward to 1916 account was £9,139. The profit earned in 1913-14 was £92,077, after £30,000 was provided for debentures redeemed. It is expected that better results will be achieved during 1915-16. As of May 31, 1915, the stock of tin, etc., was valued at £278,750, while large additional assets were held. In 1916 and 1917 net profits were £167,557 and £225,315, respectively.

Directors.—F. A. Aramayo, chairman; J. D. Campbell, B. Dale, R. G. Ribon, L. A. Kensington, I. Gutierrez-Ponce. General manager: M. Roberts. Office: 148½ Fenchurch Street, London, E. C.

BERENGUELA TIN MINES.

Registered 1905. Owns 447 acres of tin lands near Berenguela, Bolivia. Output of tin: 1912-13, 153 tons; 1913-14, 202 tons; 1914-15, 193 tons.

Capitalization.—£20,000 shares authorized; £6,938 issued; par £1.

Profit.—1914-15, £475; carried forward, £3,617.

Directors.—J. MacAndrew, chairman; H. M. Read; secretary, G. C. Elgee, Leadenhall Buildings, London, E. C. Manager: C. L. Price, Berenguela, Bolivia.

COROCORO UNITED COPPER MINES (LTD.).

Registered 1909. Owns extensive copper properties in Corocoro, in the La Paz district, Bolivia. More than 500 mines and a reduction plant are owned. The Corocoro branch of the Arica-La Paz Railway runs to the mines.

Capitalization.—Authorized, £700,000 shares (par £1); outstanding, £673,607 shares.

Income account.—Net profit for the year ended June 30, 1915 (after writing £2,000 off development, and providing £10,000 for loss in exchange and for underwriting), £22,259, as against £23,163 for 1913-14. Reserve, £10,000; carried forward, £8,299.

Dividends.—1913-14, 60 centimes; 1914-15, 1 franc.

Chairman: Baron René de Batz. Secretary: R. Leo, 7 Rue des Italiens, Paris. London office: Finsbury Pavement House, London, E. C.

HUANCHACA CO. OF BOLIVIA (COMPAÑÍA HUANCHACA DE BOLIVIA).

This large company was incorporated in Bolivia in 1873 to operate silver mines. These mines comprise 3,300 acres situated in Pulacayo, Potosi district, Bolivia. Silver, zinc, lead, gold, copper, and antimony are mined. A railway, about 43 kilometers (27 miles) in length, connects the mine with the main line of the Antofagasta (Chile) & Bolivia Railway.

Capitalization.—12,800,000 bolivianos (40,000,000 francs); par 125 francs. Listed on the Paris Bourse.

Dividends.—5 francs per annum, paid in 1907 and in 1908; none since. Large dividends were paid in earlier years. Debit balance, January, 1915, 173,025 bolivianos. Reserve fund, 1,000,000 bolivianos.

President: A. Alessandri. Secretary: R. Deves. Office: Calle Prat 141, Valparaiso, Chile; Paris Office, 87 Rue St. Lazare.

NATIONAL MATCH FACTORY OF BOLIVIA (LTD.).

Registered in 1907 to acquire a concession from the Government of Bolivia for the exclusive right to manufacture and sell matches in that Republic. The concession will expire in 1930. Under the contract the Government will take 50 per cent of the profits—after debenture service. The factory, which is located at La Paz, is equipped with all modern machinery, and is sufficient in capacity to manufacture more than 130,000 gross of boxes per annum.

Capitalization.—December 31, 1915 (latest obtainable data): Preference shares, 6 per cent, cumulative (par £1), £30,000; ordinary shares (par £1), £50,000; debenture stock (first), 6 per cent (to be retired by 1928), £72,175; total, £152,175.

Income account.—Year ended December 31, 1914: Profits for the year, £36,602; expenses (including £4,330 debenture interest, and £4,800 paid to the Bolivian Government), £508. No dividends are being paid. Debit balance to profit and loss as of December 31, 1914, £4,841.

Directors.—Geo. W. Paton, chairman; O. H. Fuerth, Albert Pam, H. E. Col. Don. Pedro Suarez, Francis M. Voules; secretary, A. R. Bennett, 65 Bishopsgate, London, E. C.

PORCO TIN MINES (LTD.).

Registered 1912. Acquired from the Potosi-Porco (Bolivia) Syndicate (Ltd.) the Porco Tin Mines, area about 400 acres, situated on the Antofagasta & Bolivia Railway (25 miles from Potosi, Bolivia). The mine, now operated for tin, was formerly worked for silver. Ore is conveyed to the mill (capacity 80 tons a day) by means of a 2½-mile aerial ropeway. Estimated ore reserve, 250,000 tons. Valuable water rights are owned.

Capitalization.—£140,000 shares authorized (par £1); £120,075 outstanding, also £19,900 6 per cent convertible debentures. Creditors December 31, 1914, £22,087.

Income accounts.—Not obtainable.

Directors.—E. Hooper, chairman; J. Edwards, L. A. Kensington, J. MacAndrew; secretary, H. F. Ings, 148½ Fenchurch Street, London, E. C. General manager, H. A. Lewis.

TIN PRODUCTION OF BOLIVIA IN 1915.

According to published statistics the tin production of the world in 1915 was 121,800 tons, derived from the following sources: Straits, 54.59 per cent; Bolivia, 29.97 per cent; Banka, Billiton, etc., 15.44 per cent.

The following table (taken from the West Coast Leader) shows in detail the mining companies of Bolivia which contributed to this production in 1915, with the respective quantities in kilos and the value thereof:

Companies.	Kilos.	Value.	Companies.	Kilos.	Value.
DEPARTMENT OF POTOSI.			ORO—continued.		
		<i>Bolivianos.</i>			<i>Bolivianos.</i>
Uncia.....	8,415,894	10,351,550	Totoral.....	513,454	631,548
Llallagua.....	5,811,944	7,148,691	Co. Mra. Oruro.....	428,679	527,275
Velarde.....	2,376,163	2,922,681	San Jose.....	341,816	420,434
Cia. Oploca.....	1,965,762	2,417,887	Pazna.....	288,729	355,137
Rescate.....	1,651,301	2,031,100	Negro Pabellon.....	173,578	213,501
de Rescate.....	1,109,058	1,350,547	Itos.....	122,220	150,331
Cerro-Rico.....	1,077,805	1,325,700	Antequera.....	84,556	104,004
Chocaya.....	725,553	892,430	Challapata.....	31,577	38,840
Chorolque.....	605,188	744,381	Challa-apacheta.....	29,214	35,933
Sala Sala.....	484,287	595,673	Vinto.....	24,160	32,117
Molino.....	484,178	595,539	Sepulturas.....	16,534	20,337
San Joaquin.....	243,204	299,141	San Cristo.....	7,630	9,385
Colquechaca.....	242,949	298,287	Eucaliptus.....	4,460	5,486
Cotani.....	167,007	205,419	Japo.....	3,050	3,751
Ocuri.....	131,884	163,447			
Agua de Castilla.....	91,938	113,084	LA PAZ.		
Sagrario.....	87,764	107,950			
Andacava.....	55,167	67,855	Viloca.....	622,283	765,408
Guari-Guari.....	50,886	62,590	Araca.....	528,625	650,209
Tana.....	32,095	48,117	Milluni.....	317,362	390,355
Hago.....	22,295	27,423	Tres Cruces.....	292,576	359,868
Carguaycollo.....	21,959	27,010	Berenguela.....	243,291	299,248
Concordia.....	21,350	26,260	Chocnacota.....	283,755	275,219
Choraya.....	20,156	24,782	Concordia.....	114,322	140,616
Buen Retiro.....	20,047	24,658	Solano.....	97,754	120,237
San Vicente.....	19,619	24,131	Quime.....	58,432	71,871
San Antonio.....	18,775	23,093	Colcha.....	57,431	70,640
Fulacayo.....	9,850	12,015	Colquiri.....	52,088	64,068
Consolidada.....	9,220	11,341	Tuesuhuma.....	45,194	55,589
Maragua.....	8,590	10,566	Bajaderia.....	38,974	47,938
Candelaria.....	6,450	7,933	Andes Tin Co.....	28,509	35,067
Alianza.....	5,344	6,573	Santiago.....	20,615	25,356
Esmoraca.....	1,662	2,044	Yaco.....	18,807	23,133
			Kami.....	13,861	17,049
ORO.			Ocavi.....	10,659	13,111
Huanuni.....	1,696,659	2,086,891	Jatuncaca.....	9,200	11,316
Morococala.....	1,439,771	1,770,918	Villaque.....	5,119	6,296
de Rescate.....	1,138,184	1,402,632	de Rescate.....	3,656	3,755
Socavon.....	727,660	895,022	Achachicala.....	2,034	2,502
Avivaya.....	602,016	762,620			
			Total.....	36,533,238	44,884,911

BRAZIL.

ALAGOAS & NORTHERN RAILWAY.

Registered October 30, 1912, to construct about 90 miles of railway, extending from Bom Jardim, State of Alagoas, Brazil, to Jacuhype, with a branch to Leopoldina. The concession carries a guaranty of 5 per cent on a capital of 45 contos per kilometer. This guaranty is granted by the State of Alagoas, which has the right to purchase the property after 20 years under certain conditions.

Capitalization.—£250,000 shares (par £10), all owned by the Great Western of Brazil Railway (which see). Advances due the latter company December 31, 1915, £126,969.

The line has been surveyed, partly graded, and about 3 miles completed. Work has now been practically abandoned.

AMAZON TELEGRAPH CO.

This company operates about 2,500 miles of cables on the Amazon River, extending from Para to Manaos, with branches on the Para River, Tocantius River, etc. Two twin-screw cable ships are owned. The company in its earlier days had great difficulty in maintaining the service owing to snags, rocks, cave-ins, etc. These difficulties have been largely overcome in recent years.

Capitalization.—£250,000 stock (par £10) and £272,900 5 per cent debentures. Dividends on the stock are payable annually in November ($4\frac{1}{2}$ per cent in 1912 and 1913, 3 per cent in 1914, none since); debentures January and July. Listed on the London Stock Exchange.

Income account.—Year ended June 30, 1915: Traffic receipts, £39,177; Government subsidy, £19,125; total, including other income, £57,933; expenses, £34,939; debenture interest and sinking fund, £22,888; surplus, £66; balance from preceding year, £5,841; balance carried forward, £5,947. Reserves June 30, 1915, £54,500. Financial condition good.

Directors.—George Keith, chairman; E. B. Ellice-Clark, Charles W. Parish, Maj. Eustace C. Quilter; secretary, M. S. Munns. Office: 42 Old Broad Street, London, E. C., and Para, Brazil. Manager: F. E. Nosworthy, Para, Brazil.

BRAZILIAN EXTRACT OF MEAT AND HIDE FACTORY.

Registered 1887. Owns the Paredao factory near Porto Alegre, Brazil; also other concessions. The number of cattle killed by the company in 1915 was 3,196, as compared with 3,631 in 1914 and 3,072 in 1913. Extract of beef is manufactured.

Capitalization.—January 1, 1916: Ordinary shares (par £1), £21,109; debentures, authorized £50,000 (6 per cent), outstanding £8,000 (exclusive of £15,000 issued as security against floating loan).

Income account.—Year ended December 31, 1915: Loss on trading in Brazil, £55; total loss for year, £1,312 (loss for 1914, £848; profit for 1913, £1,958).

Goods and products on hand, December 31, 1915, £10,981; cash, £765; sundry debtors, £1,868; sundry creditors and credit balances, £11,439; reserve funds, £8,842.

Directors.—John Beckwith, John Mackenzie, Joseph Edward Roura; secretary, S. L. Clarke. Office: 3 Great Winchester Street, London, E. C.

BRAZILIAN STREET RAILWAY CO. (LTD.).

Incorporated 1868 and reorganized 1899. Owns a tramway 16 miles in length connecting Recife (Pernambuco) with Caxanga, Brazil ("Trilhos Urbanos do Recife a Caxanga").

Capitalization.—Authorized £120,000 in shares of £1 par, outstanding £32,537 5 per cent cumulative preference shares and £86,900 ordinary shares; also £45,950 5 per cent debenture stock, redeemable at 105 per cent, interest April and October.

In 1914 this company's security holders were offered the opportunity of exchanging their debentures and shares for securities of the Pernambuco Tramways & Power Co. (which see).

Office: 134 Palmerston House, Bishopsgate, London, General manager: H. Fletcher, Pernambuco, Brazil.

BRAZILIAN WARRANT CO.

Registered 1911 to take over a company with a similar name. The company's business embraces the following: (1) Providing banking facilities for the coffee trade and for merchants of Santos, São Paulo, etc.; (2) warehousing and handling coffee and other agricultural produce; (3) acting as a clearing house; (4) handling coffee for export; (5) interested largely in an extensive cartage business in Santos, etc.

The principal subsidiaries are the São Paulo General Warehouse Co., owning the largest warehouses in South America, the Companhia Registrado de Santos, the Atlas Coffee Co., the Pure Coffee Co., the Santos Cartage Co., etc. A small guaranty is received annually from the State of São Paulo.

CAPITALIZATION, DECEMBER 31, 1915

Securities	Author- ized.	Outstand- ing.
Ordinary shares.....	£750,000	£612,500
7 per cent cumulative preference (par £1).....	250,000	248,650
Total.....	1,000,000	861,150

Dividends.—Full preference dividends of 7 per cent per annum have been maintained since the creation of the issue in 1914. Ordinary dividends have been as follows: 1912 and 1913, 7½ per cent; 1914, 5 per cent; 1915, 2½ per cent (1¼ per cent October, 1915, and 1¼ per cent April, 1916).

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1913	1914	1915
Profits, interest received, rents received, etc.....	£100,583	£115,318	£94,635
London expenses, income tax, etc.....	5,183	a 22,273	b15,672
Surplus.....	95,400	93,045	78,964
Balance forward after dividends, reserves, etc.....	53,475	59,018	40,503

a Includes £11,901 expenses, issue of preference shares.

b Includes £10,000 income-tax reserve.

From the surplus of 1915 £50,000 was appropriated to the reserve funds, which amounted, as of December 31, 1915, to £160,000. Among assets were £379,044 investments, £25,000 Treasury bills, £589,709 sundry debtors and debit balances, £212,480 stocks and stores, £82,333 cash, and other assets £55,529. Liabilities included £64,577 bills payable and £249,500 sundry creditors and credit balances.

Directors.—Charles E. Johnson, chairman; Edward Greene, managing director; Frederic N. Chapple, Joseph Danon, Julius Deussen, Thomas Fraser, Thomas Thornton; secretary, A. Macdonald, 38 Great St. Helen's, London, E. C. Manager: Charles R. Murray, 44 Rua São Antonio, Santos, Brazil.

CASCALHO SYNDICATE (LTD.).

Registered 1914. Owns three alluvial gold concessions about 4 miles in length (area 6,180 acres) on the Macuhubas River, Diamantina district, State of Minas Geraes, Brazil. It is intended to float subsidiary companies, each to develop certain sections of the property.

Capitalization.—£90,000, consisting of £35,000 "A" shares and £55,000 "B" shares, par £10. This capital is to be increased to £375,000 "A" shares and £110,000 "B" shares. The "A" shares are entitled to 100 per cent dividends in priority to the "B" shares. After "B" shares receive 100 per cent both issues share pro rata. The properties are now in the process of development. No dividends.

Directors.—E. Cattanaclie, chairman; W. G. Duncan, W. R. Gaff; secretary, E. A. Foster, 6 Great St. Helen's, London, E. C. Agents in Brazil: P. S. Nicolson & Co., Rio de Janeiro.

CITY OF SANTOS IMPROVEMENT CO. (LTD.).

Incorporated 1880. Supplies water, gas, and electricity to Santos, Brazil, and operates the tramway lines in that city (population 40,000). The government may purchase the water system at a fair valuation. The company at present has exclusive franchises which will expire at various dates beginning 1920. After expiration of exclusive franchises the company will retain plants and property and all privileges except exclusive right to operate. The total mileage of traction lines is 38. Lines cover the city and extend to Barra Beach, São Vicente, and other suburbs, serving a total population of about 150,000. A total of 14,870,776 passengers were carried during 1915, as compared with 15,346,362 in 1914.

Capitalization.—December 31, 1915: £800,000 ordinary stock, £200,000 6 per cent cumulative preference stock, par value of both issues £19; 5 per cent first charge debentures (redeemable), authorized £200,000, outstanding £132,200 (par £100), interest payable January and July; 5 per cent tramway debentures, £200,000 authorized, £179,100 outstanding (these debentures are redeemable; £4,200 redeemed during 1915).

Dividends.—Full dividends have been paid on preference shares for a number of years. The ordinary stock received 7 per cent annually from 1909 to 1913; 3 per cent in 1915.

INCOME ACCOUNTS.

Items.	1913	1914	1915
Revenue in Santos, etc.	£108,352	£101,130	£83,439
Net revenue	95,557	82,239	71,759
Debenture interest and sinking fund		28,141	25,870
Balance for dividends		56,098	45,889

Balance sheet.—December 31, 1915: Current assets, stores, cash, etc., £211,885; current and accrued liabilities, £76,372; renewal account (tramways), £26,000; reserve, £67,000; balance to credit, £40,517.

Directors.—D. M. Fox, chairman; F. Henderson, M. U. Workston, H. K. Heyland; secretary, E. H. Sulman, London. London address, Gresham House, E. C.

CITY OF SÃO PAULO IMPROVEMENTS & FREEHOLD LAND CO. (LTD.).

Registered 1911. Acquired approximately 15,000,000 square yards of freehold land in the western section of the city of São Paulo, Brazil, for the purpose of subdividing into plots to be sold, leased, or rented.

Capitalization.—£2,000,000 shares fully paid (par £10); £2,000,000 6 per cent first mortgage gold bonds (par £20 and £100), interest March and September. A sinking fund (beginning 1916) draws bonds at 105. The bonds are redeemable at 105 on six months' notice. They are secured by a first mortgage on lands owned and a proportionate amount of the proceeds of land sales is to be used for redemption purposes. During the 15 months to December 31, 1912, and during 1913 funds were advanced to meet interest requirements, the vendors receiving in payment for funds advanced £252,630 6 per cent second mortgage bonds, due 1932. The September, 1914, coupons on the two bond issues were not paid nor have any subsequent payments been made.

Income account.—None published since 1913; in that year there was a deficit of £146,631.

Directors.—Lord Balfour, of Burleigh, K. T., chairman; J. Brown, vice chairman; C. Braga, H. E. Cradock, G. de Cergat, H. Guedalla, A. D. Gurd, R. de Livio, R. Peto, Dr. H. B. Sabino, Lt. Col. Sir H. B. Smith, L. R. Vigero; secretary, H. E. Carter, 2 Broad Street Place, London, E. C.

COMPANHIA FORÇA E LUZ.

This company was incorporated in 1905 to furnish light and power to the following cities located in the State of Minas Geraes, Brazil: Mirahy, Porto San Antonio, Cataguazes, Leopoldina, São João Nepomuenco, Rio Novo; also to other towns and districts. Power plant located at Leopoldina, the current being generated from a waterfall of about 18,000 horsepower.

Capitalization.—1,000,000 milreis bonds and 300,000 milreis 8 per cent debentures; 2 per cent cumulative sinking fund retires bonds at par.

President, Dr. J. M. Ribeiro Junqueira; secretary, Antonio H. Felipe; treasurer, Dr. Norberto C. Ferreira; manager, Dr. Gabriel M. R. Junqueira; directors, the above. Office: Cataguazes, Minas Geraes, Brazil.

COMPANHIA INDUSTRIAL, OF RIO GRANDE.

Incorporated 1913. Manufactures cotton goods, soaps, vegetable oils, etc. Company owns valuable cotton plantations and also has a concession to construct 125 miles of railway in the State of Rio Grande do Norte.

Capitalization.—3,500,000 milreis.

Officers.—President, Thomas A. A. Saraiva; secretary, Robert Sauce; treasurer, Francisco Solon. Office: Natal, Brazil.

CRÉDIT FONCIER DU BRÉSIL.

This company, incorporated in Paris 1907, advances loans, does a general brokerage business, etc. The capital consists of 12,500,000 francs of stock (par 500 francs), and 37,500,000 francs first mortgage 5 per cent 50-year bonds, Series A. The authorized bond issue is 250,000,000 francs (par 500 francs). The company's affairs in France are administered by a council, the president of which is Achille Adam, Paris, and the vice president Baron Amede Reille. In Brazil Dr. João Teixeira Soares is president of the local council. Office: Avenida Rio Branco 44, Rio de Janeiro, Brazil.

CONQUISTA-XICAO GOLD MINES (LTD.).

A French company, registered 1907. Owns about 46,000 acres of gold-mining lands in the Sapucahy Valley, Minas Geraes, Brazil; also dredging rights and other properties, including hydroelectric works on the Palmella River. These hydroelectric works, in addition to supplying power for the mines, furnish light and power to the towns of São Gonçalo and Campanha. A narrow-gauge railway is also owned.

Capitalization.—£100,000 preference and £270,000 ordinary (par £1). The preference shares are entitled to 6 per cent per annum cumulative fixed and 70 per cent of balance. No dividends.

Directors.—E. Claude, president; A. Lazard, E. Lautier, Col. M. A. de Lemos, V. V. G. Wilhelm, E. Sordet; secretary, R. B. McNelly. Offices: 1 Broad Street Place, London; 48 Avenida Rio Branco, Rio de Janeiro, Brazil; 54 Rue Blanche, Paris. Manager, D. Proust, Campanha, Brazil.

JARDIM BOTANICO TRAMWAY CO.

Registered 1882. Operates about 50 miles of tramway lines in the Jardim Botânico section of Rio de Janeiro, the concession expiring in 1960. Controlled by the Rio de Janeiro Tramway, Light & Power Co. (which see), through ownership of a majority of shares. The latter company has assumed the operation of the property, taking all gross earnings and paying all operating expenses, as well as interest on the Jardim Botânico Tramway Co.'s bonds and 7 per cent dividend on the shares.

Capitalization.—(1) 21,000,000 milreis shares, par value 200 milreis, of which 14,000,000 milreis are fully paid and 7,000,000 milreis 60 per cent paid; (2) first-mortgage 5 per cent bonds dated 1911, repayable on or before July 1, 1951, by means of a sinking fund which purchases bonds up to 102½ or draws them at that figure (£1,400,000 bonds are authorized and all have been issued). Interest payable January and July at Canadian Bank of Commerce, Toronto and New York.

Income account.—Not published.

Offices: Toronto, Canada; Rio de Janeiro, Brazil; and 34 Bishopsgate, London, E. C.

LEOPOLDINA TERMINAL CO. (LTD.).

This company was registered 1911 and had acquired to December 31, 1915, 45,599 of a total of 50,000 shares (par 200 milreis) in the Companhia Cantareira e Viação Fluminense, which has a concession to operate approximately 45 miles of tramway lines in the city of Niteroy (opposite Rio de Janeiro), Brazil. The population of the city is about 40,000. The company also operates a line of ferries between Rio and Niteroy and a warehouse in the city of Rio. The company is controlled by the Leopoldina Railway.

Capitalization.—December 31, 1915: Ordinary shares, £1,250,000 (par £1), of which £625,001 are owned by the Leopoldina Railway (which see); first debentures (par £100), £1,237,000. A sinking fund of one-half of 1 per cent per annum is in operation. Interest is payable January and July 1. The proceeds of this debenture issue were used to acquire securities and to liquidate current accounts.

INCOME ACCOUNTS, CANTAREIRA CO. (CALENDAR YEARS).

Items.	1912	1913	1914	1915
MARITIME SECTION.				
Gross receipts.....	£150,391	£162,350	£130,723	£103,404
Working expenses.....	70,254	70,379	59,211	55,117
Maintenance.....	20,672	29,105	22,006	18,945
Net receipts.....	59,465	62,866	49,506	29,342
TRAMWAYS SECTION.				
Gross receipts.....	127,402	140,414	113,810	103,404
Working expenses.....	50,072	52,070	43,652	33,087
Maintenance.....	28,239	32,149	28,653	22,006
Net receipts.....	49,091	56,195	41,505	48,311
WAREHOUSES AND PIERS.				
Gross receipts.....	19,496	16,024	16,090	15,168
Working expenses, including maintenance.....	7,258	6,463	4,648	3,726
Net receipts.....	12,238	9,561	11,442	11,442
WATER SERVICE.				
Gross receipts.....	26,352	α 13,290		
Expenses.....	13,415	α 5,214		
Net receipts.....	12,937	α 8,076		

α Figures are for six months only; the concession for the water service was disposed of during the year 1913 to the government of the State of Rio de Janeiro for £253,480, which sum was transferred to the Terminal Co. and used to reduce outstanding advances.

NOTE.—Administration and general expenses of the Cantareira Co.: 1912, £19,877; 1913, £22,354; 1914, £17,376; 1915, £14,992.

REVENUE ACCOUNT OF TERMINAL CO.

Items.	1913	1914	1915
Net revenues for year.....	£85,770	£69,703	£66,905
Add balance from previous year.....	3,599	4,994	5,947
	89,369	74,697	72,852
Deduct interest and sinking funds.....	68,750	68,750	69,114
Balance (surplus).....	20,619	5,947	3,738
Dividend.....	α 15,625	None.	None.

α 1½ per cent.

Cash on hand or on deposit at interest, December 31, 1915, £68,622; bills receivable, £13,751; 5 per cent debentures of company owned, £78,461; sundry creditors, £7,888.

Directors.—Oliver R. H. Bury, chairman; R. E. Brounger, N. B. Dickson, Col. Sir Henry E. McCallum, J. H. Wicks; secretary, J. H. Drury, 3 Lombard St., London, E. C.

MANAOS TRAMWAYS & LIGHT CO. (LTD.)

Registered January, 1909. Acquired from the State of Amazonas, Brazil, a concession for the lighting and tramway systems of the city of Manaus (on the Amazon River; population, 60,000). Property reverts to the State in 1968 without payment. The company is exempt from customs duties on supplies, etc., and the consideration payable under the concession is £12,500 per annum for the first five years, thereafter increasing £1,250 per annum for each five-year period.

Capitalization.—April 30, 1915: Shares (par £1), £300,000; 5 per cent first (mortgage) debentures, £293,900; subsequently £50,000 debentures were issued as collateral for a loan. The expense of the debenture issue (including £49,500 discount) was £53,000. Reserves as of April 30, 1915, £50,725; loan outstanding, £28,000.

INCOME ACCOUNTS.

Items.	Year ended April 30—		
	1913	1914	1915
Gross receipts.....	£152,106	£132,877	£110,420
Operating expenses.....	101,943	96,848	84,240
Net receipts.....	50,163	36,029	26,180
Net income.....	50,163	36,041	26,189
Charges.....	18,510	21,615	26,088
Surplus.....	22,107	14,426	141

^a Includes £6,180 loss on exchange.

Of the gross receipts for 1914-15, £68,992 was from tramways and £40,338 from lighting. It was stated as of April 30, 1915, that the State and Federal and municipal governments were somewhat in arrears for street lighting, etc.

Directors.—George M. Booth, chairman; W. Harold Tregonning, William C. Burton, James Mitchell, George Watson; secretary, H. W. Stacey, 9 Cloak Lane, London, E. C. Operating managers, J. G. White & Co. (Ltd.) (same address). Manager at Manaus: E. B. Kirk.

MAPPIN & WEBB (BRAZIL) (LTD.).

Registered 1911. Took over the Brazilian business of Mappin & Webb (Ltd.) in jewelry, gold, silverware, cutlery, etc. An extensive business is carried on.

Capitalization.—Preference shares, £100,000 (cumulative, 6 per cent); ordinary shares, £15,000. The dividend on the preference shares is guaranteed until 1918 by Mappin & Webb (Ltd.). Preference shareholders may vote only under special circumstances.

Income accounts.—Not made public except to shareholders.

Directors.—W. J. Mappin, chairman; W. D. Barlow, W. T. Haddock, H. J. Mappin, S. A. Mappin, H. Portlock; secretary, J. T. Boyes. Office (London): 158-162 Oxford Street.

MOINHO SANTA CRUZ.

Does an extensive grain-milling and warehouse business; sells a large amount of flour annually.

Capitalization.—3,000,000 milreis; par value of shares, 200 milreis.

OURO PRETO GOLD MINES OF BRAZIL (LTD.).

Incorporated 1884 to develop mining properties in Brazil; reconstructed 1893 and again in 1914. Mines, which have been extensively developed, are located in the State of Minas Geraes. The Passagem Mining Estate (2½ square miles) and the Santa Anna Mines (1 square mile) are the principal properties.

PARA ELECTRIC LIGHTING & RAILWAY CO. (LTD.).

This company was incorporated in 1905 to acquire the street railway and electric lighting undertaking of the Companhia de Estrada de Ferro Paraense, of Para, Brazil. Concession expires December, 2004. In 1915 the company purchased at a cost of £6,389 the entire stock of the Para Gas Co. The terms of purchase entailed the guaranty of the 5 per cent interest and 1 per cent amortization per annum on the £24,900 outstanding debentures. The £6,389 paid for the £49,000 shares of the Gas Co. was distributed £5,000 in preference shares and the balance in cash. The length of the tramway lines is 34½ miles.

CAPITALIZATION, NOV. 30, 1915.

Securities.	Author- ized.	Outstand- ing.
6 per cent preference shares, cumulative (par £5).....	£390,000	£325,000
Ordinary shares (par £5).....	390,000	390,000
5 per cent first debenture stock ^a	700,000	668,399
Total.....	1,480,000	1,383,399

^a The first debenture stock is amortized by means of a sinking fund of one half per cent per annum, which purchases the debenture stock up to 105 or draws same at that price.

INCOME ACCOUNTS.

Items.	Year ended November 30—	
	1914	1915
Operating profits, etc.....	£118,177	£128,821
Interest, loss on exchange, etc.....	49,753	75,916
Balance.....	68,424	52,905
Balance from previous year.....	19,206	20,030
Balance available for dividend.....	87,630	72,935
Reserve appropriations.....	25,000	15,000

NOTE.—Gross receipts for 1914-15 were £243,483, as compared with £249,892 in 1913-14 and £302,103 in 1912-13.

DIVIDENDS.

	1907-8 and 1908-9	1909-10 to 1912-13	1913-14	1914-15
	Per cent.	Per cent.	Per cent.	Per cent.
Preference.....	6	6	6	6
Ordinary.....	0	10	6	5

OPERATING DATA.

Items.	1913	1914	1915
Passengers carried.....	23,254,258	19,339,989	18,382,979
Car miles run.....	3,172,069	2,974,422	2,773,800
Consumers connected.....	3,890	3,951	4,099
Units sold for light and power.....	2,371,997	2,430,834	2,418,804

Stores on hand November 30, 1915, £71,306; sundry debit balances, £42,316; British Government Treasury bills, £19,913; cash, £39,313; bank bills receivable, £38,500; sundry credit balances, £20,874; unclaimed dividends, £34,838.

Directors.—Great Britain: Follett Holt, chairman; Dr. Jose Paes de Carvalho (formerly president of the State of Para), F. M. Voules, Herbert Ansell, E. S. Baring-Gould, W. C. Burton, E. C. Chester, W. K. Whigham. At Para, Brazil: Dr. Augusto Octaviano Pinto, Dr. Lucio Amorim Do Amaral. Secretary, E. A. Borel, 9 Cloak Lane, London, E. C. Manager in Para, W. Binns. Operating managers, J. G. White & Co. (Ltd.).

PARA (MARAJO) ISLANDS RUBBER ESTATES.

Registered 1910 to acquire rubber properties covering an area of more than 150,000 acres, situated on the island of Marajo, municipality of Anajas, State of Para, Brazil. It is stated that rubber trees exist on the property in very large numbers. Owing to the decline in the price of the commodity a receiver was appointed (February, 1915) on behalf of the debenture holders.

Capitalization.—£20,000 preference shares, 6 per cent cumulative (par 1s.); £100,000 ordinary shares (par 5s.); debentures, £7,380. Interest due January 1, 1915, was defaulted on this debenture issue. No statements are available later than 1912, when a profit of £1,502 was realized.

Directors.—B. S. Straus, chairman; E. A. Greathed, the Right Hon. Sir W. Ridgeway; receiver, John Skinner; secretary, E. F. Johnson. Office: 6 Broad Street Place, London, E. C.

PARA PUBLIC WORKS CO. (LTD.).

This company has the exclusive right to construct, equip, and work the public service of telephones in the city of Para (Belem), Brazil. As of December 31,

1915, 762 telephones were in use, as compared with 676 on December 31, 1914, and 620 on December 31, 1913. The present installation has a capacity of 1,620 telephones. Formerly the company had a contract for the public cleaning of the city; this was canceled for a consideration of £275,200 of municipal bonds, which have been disposed of by the company and the proceeds largely used to retire outstanding 7 per cent bonds.

Capitalization.—December 31, 1915: Ordinary shares (par £1), £60,000; deferred shares, £2,000. After dividends have been paid on the ordinary shares up to 100 per cent the deferred shares will be entitled to dividends up to £2,000; in the event of liquidation both issues share ratably.

INCOME ACCOUNTS (CALENDAR YEARS)..

Items.	1913	1914	1915
Telephone subscriptions.....	£8,872	£10,753	£11,940
Expenses Para and London.....	6,887	7,247	8,029
Balance carried down.....	2,005	3,506	“ 3,911
Balance from previous account.....	1,286	3,291	6,797
Total surplus.....	3,291	6,797	10,708

“After allowing £1,080 loss on exchange.

The £10,708 surplus as of December 31, 1915, was appropriated £1,500 depreciation on investments and £5,000 depreciation on installation; the balance, £4,208, being carried to balance sheet. Of this balance, £2,100 ($2\frac{1}{2}$ per cent) was paid as a dividend.

Directors.—Francis M. Voules, chairman; H. E. Col. Don Pedro Suarez, T. M. C. Steuart; secretary, A. R. Bennett, 65 Bishopgate, London, E. C.

PORT OF BAHIA.

Incorporated 1902 to construct docks and port works at Bahia, Brazil. Property may be acquired by the Federal Government after December, 1922, under certain conditions.

Capitalization.—50,000,000 milreis shares; £3,000,000 5 per cent bonds (denominations £20 and £100), redeemable at par by December 31, 1972, by means of a sinking fund commencing 1923. These bonds were mostly disposed of in France. A total of 70 per cent of the net revenues of the port are to be applied to the bond interest and sinking fund. In the event of this sum proving insufficient the Federal Government has undertaken to impose a special ad valorem customs tax of 2 per cent gold upon all merchandise imported via this port. Should this sum prove insufficient it is to be increased until the necessary amount shall be raised. Interest was defaulted on the bonds September, 1914.

Income account.—1914: Net revenues, £143,949.

Offices: Bahia, Brazil, and Paris, France.

RIO DE JANEIRO BENEDICTINE ORDER LOAN.

These bonds, offered in London in 1909, bear interest at 5 per cent and are to be retired July 1, 1950, by means of a sinking fund, which began operations in 1915 and which will purchase bonds up to par or will draw them at that figure. Bonds are redeemable at the option of the Order at 103 per cent on six months' notice. The loan is for the total sum of £300,000.

The bonds are the obligation of the monastery of São Bento, Rio de Janeiro, and are secured by lands on which are business and residential places. The value of the property is estimated at £600,000. The revenues from it during 1913 totaled £42,815.

ST. JOHN DEL REY MINING CO. (LTD.).

This company was chartered in 1830 to acquire gold-mining properties in Brazil. The company has operated the Morro Velho Mine continuously for about 85 years. A cave-in that occurred during 1886 necessitated a reconstruction of the property during 1887–88. A shaft has been driven for a depth of more than a mile.

CAPITALIZATION, FEBRUARY 29, 1916.

Securities.	Authorized.	Out-standing.
10 per cent preference shares (par £1).....	£100,000	£100,000
10 per cent second preference shares (par £1).....	100,000	.....
Ordinary shares (par £1).....	600,000	546,265
7 per cent debentures.....	.....	a 13,370

a Of this total £11,570 was redeemed prior to June 1, 1916.

INCOME ACCOUNTS.

Items.	1914-15 ^a	1915-16 ^a
Bullion and silver produced, rents, etc.....	£439,568	£450,934
Working expenses.....	291,713	286,214
Balance carried to profit and loss account.....	147,855	184,720
Net, including balance brought forward, etc.....	157,331	176,101
Balance after London expenses, income tax, etc.....	137,344	133,951
Amounts transferred to reserve, capital works account, etc.....	60,000	60,000
Preference dividend, and tax.....	10,813	11,750
Ordinary share dividend.....	b 54,626	b 54,626
Production of gold and silver..... tons..	199,234	201,552
Total tonnage (2,240 pounds) crushed.....	191,500	192,500

a Years ended Feb. 28 and 29.

b 10 per cent.

Sundry debtors, February 29, 1916, £24,083; cash, £71,703; gold and silver in Brazil and in transit, £50,847; British Treasury bills (£40,000 since redeemed), £87,643; investments, at minimum prices, £115,351.

Directors.—H. Percy Harris, chairman; J. F. Remnant, Sir Edw. Goulding, Col. H. Le Roy-Lewis, C. B., D. S. O.; C. F. W. Kup, managing director; acting secretary, F. V. Steward; superintendent at the mines, George Chalmers, Morro Velho, Brazil. London office: Finsbury House, Bloomfield Street, E. C.

SÃO PAULO GAS CO. (LTD.).

Registered 1869. The company has a concession, expiring 1950, from the State of São Paulo. The company at the expiration of the concession will retain its property and will still have the right to furnish gas and its products.

CAPITALIZATION, DECEMBER 31, 1914.^a

Securities.	Authorized.	Out-standing.
6 per cent preference shares, cumulative (par £10).....	£150,000	£150,000
Ordinary shares (par £5).....	350,000	275,000
5 per cent debentures due 1928 (par £50) ^b	125,000	125,000
Total.....	625,000	550,000

a Latest figures obtainable.

b The debentures are secured by a first charge on the property and are redeemable at par at the company's option.

INCOME AND PROFIT AND LOSS ACCOUNTS (CALENDAR YEARS).

Items.	1912	1913	1914
Brought forward from previous year.....	(a)	£48,860	£37,584
Net earnings from operations in Brazil, etc.....	£76,448	65,069	62,273
Total income.....	76,448	113,929	99,857
London charges, income tax, interest, etc.....	16,005	39,569	35,398
Surplus.....	60,443	74,360	64,459
Preference shares dividends.....	b 9,000	b 9,000	b 9,000
Ordinary dividends.....	c 13,750	b 16,500	d 17,875
Transferred to reserve.....	.....	11,276	.....

a The sum of £11,546 was brought forward from 1911. This sum is not included above.

b 6 per cent.

c 5 per cent.

d 6½ per cent.

After payment of the ordinary-shares dividend in 1914 a total of £37,584 was carried to the balance sheet. The balance sheet as of December 31, 1914, reported coal and stores on hand and in transit, £132,895; sundry debtors, £47,677; investments, £20,736; bills receivable, £12,143; cash, £56,729; loans payable, £139,513; sundry creditors, £29,545; general reserve fund, £125,000.

Directors.—F. H. W. Hope; H. Schulman, chairman; H. Malcolm Hubbard; secretary, G. H. Rogers. Office: 306 Caxton House, London, S. W.

SÃO PAULO RAILWAY CO. (LTD.).

Organized in 1859 to construct a railroad between São Paulo and Santos, Brazil. Has a monopoly of the trade between these two cities. The Government may purchase the line in 1927 under certain conditions. The following data, unless otherwise indicated, show the status of the railway as of June 30, 1915:

Location.—Main line extends 86.5 miles from Santos via São Paulo to Jundiáhy, with a branch line to the town of Bragantina, 67 miles; total mileage operated, 153.5. Santos, the greatest coffee port in the world, with a population of 75,000, is the shipping port for the important city of São Paulo (population nearly 500,000, second in size in Brazil). São Paulo is a great commercial and industrial city, with about 500 factories, whose working capital is estimated to be \$20,000,000. The population of Jundiáhy is about 20,000. The line from Santos to São Paulo and beyond is entirely double tracked.

Equipment.—December 31, 1915: Locomotives, 138; passenger cars, 209; freight cars, 4,028; miscellaneous cars, 122.

Management.—A. J. Owen, superintendent; Vernon Hinde, secretary. Directors: Lord Balfour, of Burleigh, chairman; O. R. H. Bury, F. N. Chapple, John Gordon, Charles E. Johnston, Sir Gerard Smith. Semiannual meeting: Last Wednesday in April and October. General office: 111 Gresham House, Old Broad Street, London, England. Operating office: São Paulo, Brazil.

Tonnage.—For the calendar year 1915, 2,526,726 tons of freight were transported, as compared with 2,414,536 tons for 1915 and 3,239,909 for 1913. Coffee is the principal product carried, and practically the entire product of Brazil is shipped over this road.

Income account.—For the half year ended December 31, 1915, the gross receipts from all traffic sources were £1,016,732; operating expenses, £597,495; net receipts, £419,237; other income, £25,807; total net income, £445,045; interest, etc., £56,530; surplus, £388,515; balance forward from preceding half year, £171,276; surplus available for dividends, etc., £559,792; preference dividend for half year, £25,000; ordinary dividend, £150,000; income tax, £100,000; carried forward, £284,791.

Train-mile earnings are the greatest in South America, and are generally in excess of the total reported by any steam railway in North America.

Balance sheet.—The balance sheet as of June 30, 1915, showed cash, stores, bills receivable, and other current assets (including investments with a market value of £888,299), to a total of £2,518,844, as against current liabilities of £335,261. There was a reserve fund of £2,131,730, and an income-tax reserve of £79,607.

In the income account for June 30, 1915, other deductions after fixed charges were for depreciation in value of investments during the year since July 1, 1914.

Bonded debt.—£1,000,000 5½ per cent debenture stock; £250,000 5 per cent debenture stock; £1,000,000 4 per cent debenture stock.

Capital stock.—£1,000,000 5 per cent preference stock and £3,000,000 ordinary stock.

Dividends.—1901 to 1906, 12 per cent; 1907 to 1911, 13 per cent; 1912 and 1913, 14 per cent; 1914 and 1915, 10 per cent (free of income tax).

CHILE.

AMELIA NITRATE CO. (LTD.).

This company, one of the large nitrate producers of Chile, was registered 1896. The shares are owned approximately two-thirds in Great Britain and one-third in Germany. Nitrate, iodine, etc., are produced.

Capitalization.—June 30, 1915 (latest obtainable): Preference shares, 6 per cent cumulative (par £100), £50,000; ordinary shares (par £10), £156,000; 5½ per cent first-mortgage debentures (par £50), £120,000 (these debentures are repayable by sinking fund prior to January 1, 1920, by annual drawings at

103 per cent; approximately £100,000 outstanding August, 1916); 5½ per cent 10-year debentures, £89,300 (original issue £100,000; balance redeemed).

Dividends.—On preference shares: 1906–7, 48 per cent; 1907–8, 27 per cent, liquidating all back dividends; 1908–9 to 1915–16, 6 per cent per annum. Ordinary: 1907–8, 18 per cent; 1908–9, 28 per cent; 1909–10 and 1910–11, 8 per cent; 1911–12 and 1912–13, 9 per cent; 1913–14, 7 per cent; 1914–15, 7 per cent.

INCOME ACCOUNTS.

Items.	1912	1913	1914	1915
Gross profits.....	£72,460	£66,680	£62,577	£57,796
Balance from previous year.....	571	618	529	13,210
Total.....	73,031	67,298	63,106	71,006
Charges, London expenses, income tax, etc.....	20,623	23,498	24,135	24,854
Total surplus.....	52,408	43,800	38,971	46,152
Production—quintals.....	1,332,357	1,220,543	1,124,112	992,968

Of balance for 1915, £31,140 was used for sinking fund, £3,000 for preference dividend, and £10,920 for ordinary dividend; £426 was carried forward.

Balance sheet.—June 30, 1915: Cash, £10,340; bills receivable, £22,618; remittances in transit, £53,571; stocks in hand, £145,827; furniture and fittings, £3,550; sundry creditors, £124,610; reserve account, £37,500.

Directors.—Baron Bruno Schroder, chairman; C. A. Bingel, Sir Walpole Greenwell; secretary, C. A. Huni, F. C. I. S., 3 Finch Lane, London, E. C.

ANGLO-CHILEAN PASTORAL CO. (LTD.).

Registered 1904 to acquire until September, 1923, the right to a large tract of land located within the watershed of the Frias River, Chile. The property is 2,240 square miles in area and extends from the Pacific coast to the boundary with Argentina. Cattle, sheep, horses, and mules are raised. As of November, 1914 (latest report rendered), 28,613 sheep were owned (total wool clip for 1913–14, 112,795 pounds), as well as 8,141 head of cattle and 555 horses and mules. About 90 miles of property have been fenced.

Capitalization.—April 30, 1914 (latest figures obtainable): Shares authorized (par £1) £120,000, outstanding £83,025; debentures, 10 per cent, authorized £20,000, outstanding £7,600 (remainder of authorized issue deposited as collateral for sundry creditors).

INCOME ACCOUNTS.

Items.	Year ended April 30—	
	1913	1914
Sales of wool, live stock, and stores.....	£8,508	£11,428
Expenses in Chile.....	3,551	3,903
Net profit in Chile.....	4,957	7,525

Interest accrued on debentures as of April 30, 1914, £4,148.

Directors.—Frederick William Kerr, chairman; Alex. Henderson, Arnold Wethered; secretary, G. M. O'B. Horsford, F. C. I. S., 31 Budge Row, Cannon Street, London, E. C. Manager: D. H. Brand.

CARRIZAL SHARE TRUST (LTD.).

Registered 1900. Owns £679,900 shares of the Sociedad Minas y Fundiciones de Carrizal (Chile), operating copper mines.

Capitalization.—£110,000 shares authorized (par £1), £67,997 outstanding.

Dividends.—1905–6, 6d.; 1906–7, 8d.; 1907–8, 10d.; none since.

Debit balance.—Year 1915: £270.

Directors.—T. P. P. Powell, chairman; Sir H. W. Kirby, G. R. H. Wilson; secretary, H. J. Page, 21 Ironmonger Lane, London, E. C.

CHILEAN STORES (GATH & CHAVES) (LTD.).

Registered February, 1913, to take over the business of general stores and merchants in Chile, formerly carried on by the South American stores (Gath & Chaves) (Ltd.).

CAPITALIZATION, JULY 31, 1915.

Securities.	Author- ized.	Out- standing.
Preference shares (par £1), entitled to 6 per cent per annum cumulative and 25 per cent of the surplus profits.....	£200,000	£131,000
Ordinary shares (par 10s.), entitled to 6 per cent per annum noncumulative and 75 per cent of the surplus profits.....	200,000	200,000
Total capitalization.....	400,000	331,000

INCOME ACCOUNTS.

Items.	Year ended July 31—	
	1914	1915
Net profits in Chile.....	£14,179	£11,712
Balance (after expenses) carried to balance sheet.....	11,915	9,846
Preference dividend.....	a 7,860	a 7,860
Ordinary dividend.....		b 6,000
Transferred to reserves.....	4,055	

a 6 per cent.

b 3 per cent.

Stock on hand and in transit July 31, 1915, £268,560; bills receivable, £29,000; cash, £4,814; sundry debtors and debit balances, £7,805; sundry creditors and credit balances, £51,790; reserves, £5,291.

Directors.—Sir W. Capel Slaughter, chairman; Georges Benard, G. L. Bevan, Lorenzo Chaves, Baron F. A. d'Erlanger, B. Nathan. Local board in Santiago de Chile: Adolpho Guerrero, chairman; Salvador Izquierdo, Luis Davila Larrain, Pablo Della Valle. Secretary: George Frampton, 8 Crosby Square, London, E. C.

CHILE TELEPHONE CO.

Registered 1889, to acquire various telephone properties in Chile.

Capitalization.—£330,000 (£360,000 authorized) shares, par £5.

Dividends.—1906-7 to 1909-10, 8 per cent; 1910-11, 7 per cent and 50 per cent in shares; 1911-12, 8 per cent, subject to tax; 1912-13 to 1916-17, 8 per cent each, tax free.

LAGUNAS SYNDICATE (LTD.).

This company was registered in 1889 to acquire nitrate properties in the Province of Tarapaca, Chile.

Capitalization.—June 30, 1917: Shares (par £1), £550,000; debenture bonds, £394,380; outstanding balance of £547,130, 5 per cent, to be retired at par up to 1923, interest payable January and July 15.

Dividends.—1911, 6 per cent; 1911-12, 5 per cent; 1912-13, 4 per cent; none since.

Income account.—Year ended June 30, 1917: Gross profits, £58,138; net profits after charges, £32,623. The latter sum was transferred to sinking fund.

The cost of the works and property, less sinking fund, was £849,698, and the total assets amounted to £1,188,294.

PACIFIC & EUROPEAN TELEGRAPH CO. (LTD.).

Registered 1892. Operates a through telegraph line from Valparaiso to Santiago, Chile, and to Buenos Aires, Argentina; completed 1894.

Capitalization.—£100,000 shares, all held by the Western Telegraph Co. and the West Coast Telegraph Co. These two companies guarantee an issue of £68,400 4 per cent mortgage debentures, due 1942 (original issue, £100,000, callable at 110). Original offering price of debentures, 102 per cent; interest due June and December.

Income account.—Not made public.

Directors.—Sir A. J. W. Cappel, K. C. I. E., chairman; B. J. W. Barry, Hon. A. C. Brodrick, Sir J. Denison-Pender. Office: Electra House, Finsbury Pavement, London, E. C.

PAN DE AZUCAR NITRATE CO. (LTD.).

Registered 1901. Owns Pan de Azucar nitrate properties located in Tarapaca, Chile.

Capitalization.—£110,000 shares, par £5.

Dividends.—1903-4 to 1907-8, 12 per cent yearly; 1908-9, 1909-10, and 1910-11, 6 per cent; 1911-12, 15 per cent; 1912-13, 18 per cent; 1913-14, 8 per cent; 1914-15, none.

Income account.—Year ended June 30, 1915: Loss from operation, London expenses, etc., £15,421. This compares with a usually large profit, and was due to abnormal war conditions.

Directors.—Hon. Herbert C. Gibbs, chairman; Brien Cokayne, Andrew Geddes, H. W. Sillem, J. I. Smail; acting secretary, A. H. Short, 25 Old Broad Street, London, E. C.

PODEROSA MINING CO. (LTD.).

Registered 1908. Acquired a copper property, comprising 455 acres, located in Collahuasi district, Province of Tarapaca, Chile.

Capitalization.—£500,000; par £1.

Dividends.—5s. paid 1909; none since.

Income account.—Year ended December 31, 1915 (rendered July 31, 1916): Net receipts from sales of ore, interest, etc., £60,033; net after mining expenses, £21,588; net surplus after depreciation of buildings, etc., £17,025; balance at debit of the revenue account, £3,278, as compared with £20,304 at close of 1914. Net receipts for 1914 were £42,382; the net operating loss was £5,794.

During 1915, 3,734 tons of copper ore, of an average assay of 21.86 per cent copper and 5.93 ounces silver per ton, were shipped to the smelter—this comparing with 5,289 tons, assaying 18.23 per cent copper and 3.95 ounces silver, in 1914 and 7,793 tons in 1913.

Directors.—Charles Fearn, chairman; William J. Barnett, Vicente Echeverria, Lionel W. Harris; secretary, F. W. Bishop, F. C. I. S. Office: 9 New Broad Street, London. Mine manager: J. H. Ivey, Antofagasta, Chile.

VALPARAISO (CITY) WATER-BOARD 5½ PER CENT BONDS.

This issue, £250,000, was floated in London during 1912 by J. Henry Schroder & Co., of London, at 99 per cent. Bonds are to bearer and in denominations of £100, interest payable April and October. A cumulative sinking fund will redeem the entire issue on October 1, 1940. This sinking fund buys bonds in the open market at below par or draws them at that figure. The proceeds of the issue were used to extend and improve the water supply of the city. The issue is unconditionally guaranteed both as to principal and interest by the Government of Chile and is free from any taxes in that Republic. The waterworks are operated by a board consisting of the provincial administrator of Valparaiso, two citizens, and two members of the municipality, one appointed by the President and the other by the municipality.

While these bonds are not actually the obligation of the city of Valparaiso, they may for convenience be classified as municipal bonds.

This issue is officially quoted on the London Stock Exchange.

WEST COAST OF AMERICA TELEGRAPH CO.

This company is a reorganization (year 1897) of a previous company incorporated 1877 to take over telegraph lines along the west coast of South America. The Western Telegraph Co. owns a large block of the stock.

Capitalization.—£112,520 shares (par £10); £150,000 4 per cent debentures, repayable at par January 1, 1917 (par £100); £20,000 4 per cent noncumulative income debentures. This company, jointly with the Western Telegraph Co., guarantees £100,000 4 per cent debentures of the Pacific & European Telegraph Co.

Dividends.—2½ per cent annually, 1906 to 1912; none since.

INCOME ACCOUNTS.

Items.	1914	1915
Gross receipts.....	£61,129	£65,478
Working expenses.....	43,054	46,216
Net receipts.....	18,075	19,260

Including £1,995 brought forward from December 31, 1914, the total net income was £20,778; interest on debentures (including 4 per cent income bonds), £6,800; transferred to general reserve fund, £5,000; provision on account of investment fluctuations, £6,000; balance, £2,978. Reserve fund investments as of December 31, 1915 (marketable securities), were valued at £78,341, less £16,000 provision on account of investment fluctuations. Current assets and stores, £44,603; current liabilities, £11,619.

Directors.—Sir John Denison-Pender, K. C. M. G., chairman; Sir Albert J. Leppoc Cappel, K. C. I. E., Francis Alexander Johnston; secretary, Frederick L. Robinson. Office: Electra House, Finsbury Pavement, London, E. C.

QUOTATIONS AND DIVIDENDS OF SECURITIES.

The following table, from the official list of the Valparaiso Stock Exchange, shows the quotations and dividend records of Chilean securities, as of April 20, 1917. The sign \$ is used to indicate Chilean paper pesos, worth approximately \$0.2825 on April 1, 1918.

Companies.	Capital.		Value of share.		Dividends (total).			Market price.
	Nominal.	Paid in.	Nominal.	Paid in.	1916	1917	Last.	
BANKS.								
Chile.....	\$80,000,000	\$40,000,000	200	100	12	8	8	206
Hipotecario de Chile.....	\$3,000,000	\$6,000,000	200	200	15	10	10	518
Santiago.....	\$3,000,000	\$6,000,000	100	100	20	7	7	136
Español de Chile.....	\$10,000,000	\$30,000,000	100	100	14	6	6	148
Hipotecario de Valparaiso.....	\$1,000,000	\$2,000,000	100	100	12	5	5	115
Nacional.....	\$25,000,000	\$16,000,000	100	40	10	-----	6	49½
República.....	\$14,000,000	\$14,000,000	100	100	-----	-----	6½	413
Italiano.....	\$10,000,000	\$10,000,000	100	100	-----	-----	4½	-----
PASTORAL AND LIVE-STOCK COMPANIES.								
Tierra del Fuego.....	£1,800,000	£1,800,000	1	1	30	10	10	77½
Chile & Argentina.....	£475,000	£475,000	1	1	-----	-----	-----	7½
Aysen.....	£100,000	£100,000	1	1	15	-----	5	47
Laguna Blanca.....	£195,000	£195,000	1	1	15	10	10	72
Gente Grande.....	£85,000	£85,000	1	1	25	5	5	84
NITRATE COMPANIES.								
Antofagasta.....	\$16,000,000	\$16,000,000	25	25	80	20	20	148½
La Unión.....	\$3,000,000	\$3,000,000	20	20	4	-----	2	12
F. C. de Agua Santa.....	£600,000	£600,000	10	10	7½	2½	½	250
Lastenia.....	£570,000	£500,000	1	1	\$6	-----	\$2	27
Boquete.....	£800,000	£800,000	5	5	3	-----	8	80
Aurrenra.....	£125,000	£125,000	1	1	-----	-----	\$2	-----
Loa.....	£650,000	£650,000	1	1	26	5	5	50
Perseverancia.....	\$2,800,000	\$2,800,000	20	20	22½	7½	7½	80

Companies.	Capital.		Value of share.		Dividends (total).			Market price.
	Nominal.	Paid in.	Nominal.	Paid in.	1916	1917	Last.	
MINING COMPANIES.								
Gatico.....	£275,000	£275,000	1	1	Per cent. \$2	Per cent. \$2	Per cent. \$2	48
Curanilahue.....	\$9,000,000	\$9,000,000	100	100	9	.....	3	115
Antequera.....	£70,000	£70,000	0.4	0.4	.....	.....	.....	1
Poderosa de Collahuasi.....	£500,000	£500,000	5	5	\$5	.....	\$5	30
Caylloma.....	£132,000	£132,000	1	1	.....	.....	.....	8½
Llallagua (Bolivia).....	£425,000	£425,000	1	1	65	25	25	111½
Taltal.....	\$1,000,000	\$1,000,000	10	10	.....	.....	10	17½
Lota & Coronel.....	\$18,000,000	\$18,000,000	100	100	19½	28	28	452
Oruro.....	\$6,000,000	\$6,000,000	20	20	12½	10	10	20½
Oploca.....	£140,000	£140,000	1	1	45	.....	15	70
Colquiri.....	\$2,000,000	\$2,000,000	10	10	.....	.....	.....	5½
Las Vacas.....	\$1,500,000	\$1,500,000	10	10	9	.....	9	9
Schwager.....	£500,000	£500,000	20	20	30	10	10	1,600
GAS COMPANIES.								
Valparaiso.....	\$1,000,000	\$4,000,000	50	50	15	4	4	100
Concepcion.....	\$400,000	\$400,000	50	50	4	4	4	50
Santiago.....	\$9,000,000	\$9,000,000	50	50	18	9	9	102
INSURANCE COMPANIES.								
La Alemana.....	\$2,000,000	\$200,000	500	50	30	.....	.....	195
America.....	\$2,000,000	\$200,000	250	25	20	12	12	55
La Central.....	\$2,000,000	\$1,000,000	50	25	13.3	.....	.....	32
Chilena Consolidada.....	\$2,000,000	\$2,000,000	25	25	16	8	8	49
La Comercial.....	\$2,000,000	\$300,000	500	75	13.33	.....	.....	124
La Española.....	\$2,000,000	\$200,000	100	10	100	50	50	140
La Francesa.....	\$2,000,000	\$200,000	500	50	8	10	10	110
Franco-Chilena.....	\$1,000,000	\$500,000	25	14	12.1	.....	7.1	22
Internacional Chile.....	\$1,000,000	\$1,000,000	25	25	34	.....	14	82
La Italia.....	\$2,500,000	\$500,000	500	100	20	50	50	213
La Nacional.....	\$2,000,000	\$100,000	500	25	200	20	20	520
La Protectora.....	\$3,000,000	\$150,000	500	25	140	.....	.....	300
La Unión Chilena.....	\$2,000,000	\$200,000	500	50	100	50	50	520
La Previsora.....	\$2,000,000	\$200,000	10	10	.....	.....	.....	20
MARITIME SHIPPING COMPANIES.								
Sud-Americana de Vapores.....	\$7,500,000	\$7,500,000	100	100	38	28	28	600
Compañía de Diques.....	\$800,000	\$800,000	100	100	14	14	4	250
MISCELLANEOUS.								
Cervecerías Unidas.....	\$14,000,000	\$14,000,000	100	100	.....	15	15	247
Azucar de Viña del Mar.....	£235,000	£535,000	1	1	\$8.65	\$2.10	\$2.10	64
Azucar de Penco.....	£225,000	£225,000	1	1	\$9.85	\$8.45	\$3	103
Buques y Maderas.....	\$2,500,000	\$3,500,000	50	50	10	3	3	43
Maestranza y Galvanización.....	£120,000	£120,000	1	1	.....	.....	.....	12½
Compañía Industrial.....	\$2,500,020	\$2,042,400	60	60	16.66	16.66	16.66	130
Imprentas Unidas.....	\$5,000,000	\$5,000,000	100	100	.....	2	2	80
Molinera Globo.....	\$5,000,000	\$5,000,000	100	100	.....	.....	6	55
Pan y Galletas Huckle.....	\$250,000	\$250,000	20	20	75	.....	5	36
Cia. Telégrafo Comercial.....	\$300,000	\$3,000,000	25	25	14	.....	7	31
Maderera Malvoa.....	\$4,000,000	\$4,000,000	20	20	3½	.....	3	13
Chilena de Tabacos.....	\$7,500,000	\$7,500,000	20	20	20	10	10	43
Cemento Melón.....	£210,000	£210,000	1	1	30	20	5	75
Punta de Lobos.....	\$900,000	\$900,000	50	50	21	8	4	70

COLOMBIA.

BUCARAMANGA GOLD & GENERAL MINING CO. (LTD.).

Registered in 1899 in Paris. Owns mines in Republic of Colombia. Development work is in progress.

Capitalization.—£155,030 shares (par £1).

Income account.—None yet published.

Secretary, T. E. Ingledew, 60 Watling Street, London, E. C.

COLOMBIAN MINING & EXPLORATION CO. (LTD.).

Registered 1908 to acquire, at an annual rental of £3,200, gold and silver mining rights, covering 900 square miles in Supia and Marmato districts,

Colombia. Estimated ore reserve, 1914, about 136,000 tons. Receiver appointed March 19, 1915. Earnings year ended March 31, 1914, £37,241.

Capitalization.—£450,000 shares, par £1, and £50,000 6 per cent debentures, interest March and September. Bonds convertible into shares to December 31, 1917, at 10s. per share.

Officers.—Secretary, T. E. Pascoe, office 6 Surrey Street, Strand, London, E. C. Manager, N. L. Jenks, Marmato Mines, Medellin, Colombia.

COLOMBIAN NORTHERN RAILWAY (LTD.).

Registered 1898. Holds a concession from the Colombian Government, expiring December, 1933, for the construction and operation of a line of railway extending from Bogota northward to Nemocon (about 37 miles). The company held a concession for the extension of the line to Chiquinoiquira, about 64 miles farther. This concession has been disposed of to the Colombian Central Railway, in which company the Colombian Northern holds an interest consisting of shares and £20,000 debenture stock (6 per cent).

Capitalization.—Ordinary shares, £300,000 (par £10); 5 per cent first-mortgage debenture stock, £180,000; reserves, June 30, 1915, £27,000, including £9,000 against advances to the Colombian Central Railway.

Stores in hand, £13,297; sundry debtors, £12,314; advances to Colombian Central Railway (secured by £20,000 debenture stock), £17,748; investments (at market), £12,628; remittances in transit, £5,174; cash, £10,435; sundry creditors, £6,898; debenture fund, £3,172.

The following figures show the working results (years ended June 30): Gross receipts—1914-15, £53,864 8s. 2d.; 1913-14, £53,998 15s. 5d.; decrease, £134 7s. 3d. Working expenses—1914-15, £17,149 14s. 10d.; 1913-14, £14,782 6s. 7d.; increase, £2,367 8s. 3d. Net receipts—1914-15, £36,714 13s. 4d.; 1913-14, £39,216 8s. 10d.; decrease, £2,501 15s. 6d. The percentage of the working expenses for the year 1914-15 was 31.84 as compared with 27.37 for the previous year.

Under the terms of the trust deed the company had in 1915-16 to create a fund for the redemption of the debentures, by setting aside 10 per cent of the net profits. In conformity therewith, there has been placed to such fund the amount of £3,172 7s. 9d.

After writing off to revenue account the amount of £1,274 13s. 10d. preliminary expenses, and passing the amount of £3,000 to reserve account, the balance of net revenue is £43,514 11s. 1d.

Dividend on the shares of 4 per cent paid on December 1, 1915, amounted to £12,000, leaving a balance of £31,514 11s. 1d. to carry forward.

CONSOLIDATED COLOMBIA PLATINUM & GOLD MINES (LTD.).

Registered November 17, 1915. Acquired properties of the Colombia Gold & Platinum Syndicate (Ltd.) and the Colombian Goldfields (Ltd.). A very large area is covered, alluvial and dredging.

Capitalization.—£100,000 shares, par £1.

Directors.—E. Cattanaach, S. T. Cohn, H. Edwards, T. J. Ive, G. H. Short; secretary, W. E. Hollodge, 49-51 Eastcheap, London, E. C.

ENGLISH SAN ANDRES GOLD MINES (LTD.).

Registered 1909. Controls the San Andres, San Cayetano, Penoles, and other gold-mining properties in Colombia.

Capitalization.—£35,000 shares, par £1, all fully paid.

Bullion sales year ended August 31, 1914, £3,906.

Directors.—M. Devenish, chairman; F. Varley; manager, W. E. Rowlands; secretary, H. T. Butcher, 14 Copthall Avenue, London, E. C.

FRONTINO & BOLIVIA GOLD MINING CO. (LTD.).

Registered 1911. Mining rights acquired over 12 square miles and surface rights over about 40 square miles in the Republic of Colombia.

Capitalization.—£23,390 preference shares and £140,000 ordinary shares (par £1); £45,138 19 per cent debenture stock due 1921. Preference shares are entitled to 10 per cent per annum cumulative in priority to the ordinary shares. After 19 per cent is paid on the latter class, both issues share pro rata in all further dividends. Full dividends are paid on the preference shares; 10 per cent was paid on the ordinary shares in 1915.

Income account.—Year ended June 30, 1915 (submitted December, 1915): Profit (after depreciation), £20,891; net income (including balance brought forward and interest received), £22,358; debenture interest, £4,514; surplus, £17,844; dividends, £16,359; balance, £1,505. Profit, 1914, £10,877. Shares listed on London Stock Exchange.

Directors.—S. W. Stephens, chairman; T. H. Alexander, H. P. Harris, M. P., R. C. Lyell, Capt. H. O'Neill, M. P.; secretary, J. J. Truran, Gresham House, Old Broad Street, London, E. C. Manager, A. N. Mackey, A. R. S. M., La Salada, Colombia.

• NECHI MINES (LTD.).

Registered 1914. Acquired and are working the San Francisco alluvial gold properties situated on the River Nechi, at Zaragoza, Department of Antioquia, Colombia. The mines adjoin the properties of the Pato Mines (Ltd.). Consideration, £20,000 cash and £70,000 shares paid to the Oroville Dredging Co. (which see). The property consists of approximately 400 acres of gold-bearing lands. About one-sixth of this area has been tested and indicates a yield of about \$5,000,000 from 6,855,900 cubic yards. The costs are estimated at \$0.09 per cubic yard. The remainder of the property is also expected to produce good results. A dredge has commenced work.

Capitalization.—£140,000 preference shares (par £1) and £70,000 ordinary shares (par 10s.). The preference shares were offered to shareholders of the Oroville Dredging Co. (Ltd.) pro rata. These shares are entitled to all dividends until each shareholder shall receive the amount originally paid therefor; thereafter 25 per cent per annum in priority to the ordinary shares.

Property expenditure to June 30, 1915, £148,800.

Prices of preference shares, 1915.—Highest, 15s.; lowest, 8s.

Directors.—F. W. Baker, chairman; Maj. F. D. Behrend, H. D. Boyle, A. S. Elmore, T. J. Hoover; secretary, H. Richards, Salisbury House, London, E. C. Manager at mine, N. Dickerman.

OROVILLE DREDGING CO. (LTD.).

Registered 1909. Controls, among other mines, the Pato Mines of Colombia.

Capitalization.—£700,000 shares (par £1).

Dividends.—1914 and 1915, 10 per cent per annum.

Secretary, H. Richards, 441 Salisbury House, London, E. C.

ECUADOR.

ANCON OIL CO. OF ECUADOR.

Registered 1910. Acquired 4,000 acres of oil-bearing lands located at Santa Elena, Province of Guayaquil, Ecuador. Oil found at shallow depths. Operations temporarily suspended in 1913 owing to lack of funds. The shareholders of this company during 1913 subscribed for the £4,565 outstanding shares of the Ecuador Drilling Co.

Capitalization.—Authorized, £250,000 (par £1); outstanding, £81,060.

No accounts have been rendered recently. The wells are presumably idle.

Directors.—J. G. Raphael, chairman; L. Clerc, E. M. Court, E. Paix, J. J. de Vcaza; secretary, M. Balmuth, 6 Broad Street Place, London, E. C.

ZARUMA MINING CORPORATION (LTD.)

Registered 1913. Acquired the Minas Nuevas claims, 1,838 acres, located in the Zaruma district, Province of El Oro, Ecuador, 32 miles from the Pacific Ocean. On the two claims it is estimated that 78,000 tons of ore have been blocked out and 73,000 tons partly developed. Estimated value of ore, £10 to £12 per ton. A concentration plant and a hydroelectric plant are being constructed.

Capitalization.—£110,000 preferred ordinary shares (par £1) and £10,000 deferred shares (par 1s.); mortgage, £7,572. The preferred shares are entitled to 10 per cent per annum (noncumulative) and to one-half of additional profits.

Accounts not yet published.

Directors.—J. Rey, chairman; C. Brault, P. J. E. E. Chambost, A. E. Lund, E. Saladin, J. Ville; secretary, J. C. Stampfer, 156 Palace Chambers, Westminster, London, S. W.

BRITISH GUIANA.

CONSOLIDATED RUBBER & BALATA ESTATES (LTD.).

Registered September, 1909, to acquire concessions for collecting and producing rubber and balata in the colony of British Guiana. Concessions cover 35,000 square miles.

Capitalization.—Authorized: Seven per cent cumulative participating preference shares, £240,000; £10,000 ordinary stock. Practically all of this stock is outstanding.

Dividends and earnings.—Full dividends of 7 per cent per annum were paid September, 1909, to September, 1912, on the preference shares. In May, 1915, 3½ per cent was paid, leaving 15½ per cent back dividends unpaid. A dividend of 16½ per cent was paid on the ordinary stock in 1911.

Profits.—1914, £11,978; 1913, £262.

Production.—1914, 1,076,067 pounds; 1913, 899,993 pounds.

Directors.—R. Taylor, chairman; Henry Shields. H. A. Franklin, A. S. Colard, L. Oury; secretary, James Edwards, 80 Bishopsgate, London, E. C.

DEMERARA & COVERDEN PRODUCE CO. (LTD.).

Registered August, 1912, as a consolidation of the Coverden Rubber & Produce Co. (Ltd.) and the Demerara Rubber Co. (Ltd.), owning upward of 3,000 acres of rubber, balata, and gum lands and having rights to gather these commodities elsewhere.

Capitalization.—£275,296 shares; par, 2s.

No dividends.

Secretary: H. M. Graham, 147 Leadenhall Street, London.

GUIANA GOLD CO. (LTD.).

Registered 1905. Successor to the British Guiana Exploration Co. Owns four dredges on River Conawaruk. Gold production: 1912–13, 9,162 ounces; 1913–14, 7,407 ounces; 1914–15, 8,342 ounces.

Capitalization.—£50,000 shares (par £1).

Dividends.—1908–9 to 1911–12, inclusive, 10 per cent per annum; 1912–13, 10 per cent plus 5 per cent extra; 1913–14, 7½ per cent; 1914–15, 7½ per cent. Reserve, £2,000. Surplus, 1914–15 (after depreciation), £4,150.

Secretary: J. Peters, 14 Devonshire Square, London, E. C. Mine manager: J. Henderson, St. Mary's Camp, British Guiana.

DUTCH GUIANA.

VAN EMDEN GOLD MINES (LTD.).

Registered 1912 to acquire leases until 1941 of 12,500 acres of alluvial and quartz gold-mining properties situated in Dutch Guiana. Sluices are being erected and development work is being carried on. The properties are known as the Lesser Mountain concessions and are about 150 miles southeast of Paramaribo, the capital.

Capitalization.—£30,000 shares, par 5s.

Income accounts.—Not yet rendered. Balance sheet as of September 30, 1914, showed preliminary and development expenses, £5,915; bills receivable, £5,864.

Directors.—A. R. Clements, Paramaribo, Dutch Guiana, and F. R. Marshall, London. Offices: Paramaribo and 23 Philpot Lane, London, E. C.

PERU.

APORAMA GOLDFIELDS (LTD.).

Registered 1910. Acquired alluvial rights on gold placer deposits, covering an area of 1,277 acres, located near the Hauri Hauri River, Province of Sandia, Peru. Company reached production stage just prior to the declaration of war in Europe, which prevented the raising of further capital. In consideration of constructing and keeping in repair the road leading to the mine, the company will receive about 220,000 acres of land from the Government. Property was leased to J. Chaoz, of Lima, Peru, at a rental of all taxes and 25 per cent of the net profits.

Capitalization.—£40,000 preference shares and £260,000 ordinary shares authorized, latter issue outstanding. Preference stock, when issued, will be

entitled to 2 per cent per annum and will share with ordinary stock in further dividends. Loans and bills payable December 31, 1914, £33,458.

Directors.—Capt. W. B. McTaggart, chairman; J. F. D. Bowden, M. Chavel, M. Rhys Jones; secretary, J. Stap. Office: 1 Broad Street Place, London, E. C.

BACKUS & JOHNSTON BREWERY CO.

Registered 1889 to take over the brewery and ice business of Backus & Johnston at Lima, Peru.

Capitalization.—Authorized and outstanding: Ordinary stock (par £10), £110,000; founders' shares, £100. The ordinary stock is entitled to 7 per cent per annum, cumulative, and to one-half the balance of profits. In addition, £88,400 5 per cent first debenture stock and £65,000 7 per cent income debenture stock is outstanding.

Dividends.—On ordinary stock: 1908-9, 5 per cent; 1909-10, 7 per cent; 1910-11, 8 per cent; 1911-12, 9½ per cent; 1912-13 and 1913-14, 7 per cent; 1914-15, none.

Income account.—Year ended March 31, 1915: Gross profits, £17,888 (this is a much smaller amount than for previous year and reflects war conditions). After all expenses, interest payments, and £3,000 depreciation written off, the surplus was £4,863; including £2,314 carried forward, the surplus was £7,177. From this surplus £4,550 was deducted account of interest on income bonds.

Directors.—J. Lloyd, chairman; F. W. Bishop, managing director; W. F. Leese, J. Guthrie Reed, H. W. Sillem, all of London; H. Mason and J. Reed, Lima, Peru; secretary, F. W. Bishop, London. Office: 9 New Broad Street, London, E. C., and Lima, Peru.

CERRO DE PASCO COPPER CORPORATION.

The Cerro de Pasco Copper Corporation was incorporated in New York October 26, 1915, as the successor to the Cerro de Pasco Investment Co., controlling the Cerro de Pasco Mining Co., the Cerro de Pasco Railway Co., and the Morococha Mining Co. The holding company carried on its books assets valued at \$38,632,439, including \$3,429,821 cash, \$1,600,930 accounts receivable, \$3,442,965 copper, gold, and silver on hand, \$724,692 stocks of other companies, and \$28,300,282 cost of properties. There was a book surplus, as of October 31, 1916, of \$14,437,500.

Capitalization.—The authorized capitalization of this corporation consists of 1,000,000 shares of no par value, of which 666,666 are outstanding in the hands of the public and the balance reserved to be issued to holders of the \$10,000,000 10-year 6 per cent convertible bonds at the ratio of 33⅓ shares of stock for each \$1,000 bonds.

Property.—The property of the Cerro de Pasco Mining Co., which is controlled, consists of 730 mineral claims and 108 coal-mining claims. Ore reserves at these mines exceed 3,000,000 tons of copper ore, which figure, it is expected, will be considerably exceeded following further development work. It is estimated that this ore contains 253,452,000 pounds of copper and 21,745,000 ounces of silver—also gold. The coal reserves are estimated at more than 3,000,000 tons. The Morococha mine is located about 100 miles from the Cerro de Pasco. It is a large producer.

Dividends.—Dividend payments for a portion of 1916 were at the rate of \$1 per quarter; in March, 1917, the rate was \$1 regular and \$.50 extra.

Production is running (1917) at the rate of about 74,000,000 pounds per annum, as compared with 71,000,000 pounds in 1916, 48,000,000 pounds in 1915, 42,000,000 pounds in 1914, 43,860,000 pounds in 1913, and 20,258,689 pounds in 1907.

Income account.—The income account for the 10 months ended October 31, 1916, showed sales of copper, silver, gold, etc., \$19,718,164; revenue from railway, \$280,348; total income, including other income, \$23,697,556; operating expenses (including other expenses), \$14,824,977; surplus, \$8,872,579. The interest on bonds requires \$600,000 per year.

The office of this company is at 15 Broad Street, New York; the mine office at Cerro de Pasco, Peru. An office is also maintained at Lima, Peru.

CHIMBOTE COAL & HARBOUR CO. (LTD.).

Registered 1908. Acquired a concession to construct a line of railway between the port of Chimbote (one of the best harbors in Peru) inland through

a rich mining country, the total length to be approximately 150 miles. A portion of this line has been completed or graded, but work has been held up owing to difficulties between the company and the Peruvian Government. The company owns a majority of the shares of the Chimbote Mole Co.

Capitalization.—Authorized, £200,000 shares, par £1, of which £150,000 (approximately) are outstanding; loans, £25,000.

Directors.—R. Taylor, chairman; F. Bocerra; secretary, R. Goode. Office: 16 Gracechurch Street, London, E. C.

FERROBAMBA (LTD.).

Registered 1909. Acquired the Ferrobamba, Copper Queen, Bonanzas, Charcas, and other copper claims in the district of Ferrobamba, Province of Coto-bambas, Department of Apurimac, Peru (not far from Cuzco).

Capitalization.—£120,000 ordinary shares (par £1); £30,000 priority shares (par 10s.). The priority shares were sold at par and are entitled to dividends up to 15s. per share in priority to ordinary shares, and thereafter rank as ordinary shares. The company estimates ore in mines at upward of 12,000,000 tons, valued at about £28,000,000. Mine closed down in 1912 owing to lack of working capital.

Secretary: F. F. Fuller, Salisbury House, London, E. C.

LAGUNITOS OIL CO. (LTD.).

Registered 1910. Acquired an area of 4 square miles at Lagovista, about 11 miles from the port of Talara, Peru, under a lease until 1945. The lessor is the London & Pacific Petroleum Co. In 1913 about 4 square miles of additional property was acquired. A light railway connects the property with another railway running to Talara. A large amount of drilling has been done, and the property is now on a full operative basis. During 1914 the property was acquired by the International Petroleum Co., one of the Standard Oil group. In 1916 the Lagunitos Oil Co. (Ltd.) was dissolved and the undertaking assumed by the International Petroleum Co.

Capitalization.—The capitalization of the company prior to the dissolution consisted of £90,000 preference and £200,000 ordinary. In 1913–14 37½ per cent was paid on the preference shares and in 1914–15 20 per cent.

INCOME ACCOUNTS.

Items.	1913-14	1914-15
Net receipts.....	£45,870	£35,344
Depreciation.....	25,955	17,183
Surplus.....	19,915	18,161
Dividends.....	18,489	18,000
Carried forward.....	2,489	2,650
Oil produced..... tons..	39,650	41,930

LIMA RAILWAYS (LTD.).

This company was incorporated in 1865 to work two short steam railway lines, total mileage 17½, in the Republic of Peru. At the present time the lines are being operated by both steam and electricity. In 1907 the properties were leased until 1952 to the Empress Eléctricas Asociadas.

Capitalization.—December 31, 1915: Share capital, 40,000 shares of £10 each, £400,000; debenture stock, 5 per cent, amount issued £100,000, outstanding £52,983 (balance redeemed through sinking-fund operations).

INCOME ACCOUNTS (CALENDAR YEARS).

Items.	1912	1913	1914	1915
Receipts from rental, Chorrillos agreement, etc.....	£15,628	£14,956	£14,592	£16,308
Balance to net revenues after deducting Peruvian and London expenses.....	11,535	12,237	11,740	13,802
Net, including balance brought forward, etc.....	11,698	12,515	13,222	16,176
Interest, sinking fund, income tax, etc.....	11,743	5,465	5,307	8,839
Surplus.....	—45	7,050	7,915	7,337
Dividends..... 1½ per cent.....		6,000	6,000	6,000

Rolling stock on hand April 25, 1913 (latest figures obtainable): 27 locomotives and tenders; 65 passenger coaches and tramcars; 300 freight-train cars.

Directors.—Lt. Col. A. Brooke, chairman; Edw. W. Lane, Samuel Watkinson, Arthur H. Bartlett; secretary, Frederick G. Curtis, F. C. I. S.; representative in Peru (at Lima), B. J. Smith. London office: 23 College Hill, E. C. Lima office: 225 Calle Higuera.

LONDON & PACIFIC PETROLEUM CO.

Registered 1889. Leased until 1988 large petroleum properties in the Province of Paíta, Peru. Considerable development work has been carried on; a refinery, storage tanks, a railroad, pipe lines, and a fleet of tank steamers have been provided. This property in 1914-15 passed to the control of the International Petroleum Co. (controlled by Standard Oil Co. interests).

Capitalization.—£1,000,000 shares (par £10).

Dividends.—1911, 6 per cent; 1912, 20 per cent; 1913, 22 per cent; 1914, 10 per cent.

INCOME ACCOUNTS.

Items.	1913	1914
Net profits.....	£161,252	£176,730
Depreciation.....	42,252	45,530
Surplus.....	119,000	131,200
Dividend.....	60,000	51,032

Balance transferred to reserve or written off of various accounts.

NEW CHUQUITAMBO GOLD MINES (LTD.).

Registered 1907. Owns 142 acres of gold-mining property located in the district of Cerro de Pasco, Peru, and water rights over the Taya River and affluents. A tramway, a 40-stamp battery, and a cyanide plant have been constructed. Crushings commenced in 1907. Production: 1912-13, 23,673 tons; 1913-14, 20,800 tons; 1914-15, 19,556 tons.

Capitalization.—£50,000 shares authorized; £44,800 outstanding (par £1).

Profits.—1912-13, £2,320; 1913-14, £3,506; 1914-15, £2,200. Gold output, 1914-15, £12,999.

Dividends.—1907-8, 6 per cent; 1908-9, 11 per cent; 1909-10, 5 per cent; 1910-11 and 1911-12, none; 1912-13, 5 per cent; 1913-14, 3½ per cent; 1914-15, 5 per cent.

Directors.—F. Lowy, chairman and managing director; F. H. McCardie, F. E. Macfadyen; secretary, W. Holt. Office: Salisbury House, London, E. C. Manager: S. Bonany, Cerro de Pasco, Peru.

PERUVIAN CONSOLIDATED GOLD TRUST.

Registered 1911, as the Patez and Parcoy Syndicate (Ltd.), to acquire 20 mining claims at Parcoy, Peru. A plant has been erected and the company has commenced development work.

Capitalization.—Authorized, £80,000; issued, £76,047.

Income accounts.—Not yet published.

Directors.—S. R. Adcock, J. S. Enright, H. W. Whyte, A. S. Plews; general manager, A. G. Plews; secretary, E. T. Evans. Office: 11 and 12 Finsbury Square, London, E. C.

SAN ANTONIO DE ESQUILACHE MINES (LTD.).

Registered November, 1914. Acquired the San Antonio de Esquilache gold, silver, and lead mines (area 365 acres), located near Puno, Peru, on the Peruvian Southern Railway and Lake Titicaca; £1,500 cash and £208,700 shares.

Capitalization.—£250,000 shares authorized (par £1); approximately £215,000 outstanding. Ore is being shipped, but report has not yet been issued.

Directors.—H. J. Hardy, chairman; W. Bartlett, P. Belin, jr., Sir V. Chirol, Capt. R. Johnstone-Stirling, S. F. Edge, J. G. Green, W. S. Payne; secretary, H. C. Rogers. Office: 13 St. Helen's Place, London, E. C.

QUOTATIONS AND DIVIDENDS OF SECURITIES.

The following table, from the official quotation sheet, shows the quotations and recent dividends of securities listed on the Lima (Peru) Stock Exchange March 15, 1917. It should be noted that the libra, or Peruvian pound, in which the figures for capitalization and market value are expressed, is equivalent to the pound sterling (\$4.8665 in United States currency). Libra=10 soles, sol=100 centavos. The abbreviation Lp. represents the Peruvian pound.

OBLIGATIONS OTHER THAN STOCKS.

Obligations.	Capital.		Dividends.		Market value.
	Issued.	Outstanding.	1915	1916 ^a	
DEBT OF STATE.	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Peruvian pounds.</i>
Deuda Interna Consolidada.....	3,623,260	2,660,645	1	b ₂	12,600
Deuda Nacional de Amortización.....	4,389,215	574,610	-----	-----	13@17
CEDULAS AND BONDS.					
Cedulas Hipotecarias:					
Banco Internacional del Peru—					
8 per cent.....		5,100	8	8	103
7 per cent.....		14,350	7	7	100
Banco Italiano, 6½ per cent.....		80,730	6½	6½	97.500
Credito Hipotecario del Peru—					
8 per cent.....		133,980	8	8	103
6½ per cent.....		49,250	6½	6½	-----
Empresas Eléctricas Asociadas.....	1,200,000	1,091,460	5½	5½	-----
Compañía Peruana de Vapores y Dique del Callao	350,000	311,720	6	6	-----
Same.....	250,000	150,000	8	8	92.500
Tranvía Eléctrico de Arequipa.....	75,000	67,200	4	-----	-----
Sociedad Agrícola San Nicolás.....	80,000	20,900	8	8	101
Sociedad Industrial "La Estrella".....	30,000	26,550	8	8	-----
Same, second loan.....	32,000	32,000	6	-----	-----
Sociedad Industrial "Infantas".....	85,000	78,200	8	8	-----
Ingenio de Azúcar Buen Pastor.....	50,000	600	9	9	-----
Ingenio Azucarero de Huaura.....	15,000	15,000	8	8	-----
Inca Cotton Mill Co. (Ltd.).....	53,200	30,500	8	8	-----
Fábrica Nacional de Tejidos Santa Catalina.....	90,000	61,600	8	8	101
Empréstito del Colegio de Guadalupe.....	80,000	56,450	8	8	-----
Compañía del Teatro Municipal.....	5,320	4,440	8	8	-----
Empréstitos del Ferrocarril Supe-Barranca R. A.....	30,000	29,100	8	8	102

^a 1916 dividends in some instances are for part of year only.

^b Fixed annual dividend.

SHARES.

Names of enterprises.	Capital.		Par.		Dividends.		Market value.
	Total.	Reserves.	Nominal.	Paid in.	1915	1916	
BANKS.	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Peruvian pounds.</i>
Peru y Londres.....	500,000	700,000	10	10	3	-----	11
Italiano.....	200,000	299,800	10	10	7	10	12.500
Internacional del Peru.....	100,000	125,000	5	5	4	4½	3.300
Popular del Peru.....	200,000	207,700	2	2	5	7	2.200
Credito Hipotecario del Peru.....	50,000	22,912	10	4	12	14	-----
TAX-COLLECTING COMPANIES.							
Administradora del Guano.....	30,000	15,000	1	0.5.00	10	a 5	0.500
Salinera del Peru.....	100,000	55,380	1	0.4.00	12	12	0.550
Administradora de los Almacenes Fiscales.....	100,000	25,000	1	0.2.50	10	Lp. 0.025	0.250
Recaudadora de Impuestos.....	1,500,000	1,350,000	10	9	Lp. 0.800	Lp. 0.800	8.800
INSURANCE COMPANIES.							
Internacional del Peru.....	200,000	93,101	10	1	40	40	5.700
Rimac.....	250,000	111,414	10	1	30	30	5.500
Italia.....	200,000	928	10	1	10	15	2
La Nacional.....	250,000	40,001	10	0.8.00	-----	7	0.800
La Popular.....	200,000	52,100	10	1	8	8	1.500
Unidas de Seguros.....	500,000	70,000	-----	2.8.00	-----	30	2.300

SHARES—Continued.

Names of enterprises.	Capital.		Par.		Dividends.		Market value.
	Total.	Reserves.	Nominal.	Paid in.	1915	1916	
AGRICULTURAL ENTERPRISES.	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Peruvian pounds.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Peruvian pounds.</i>
Sociedad Agrícola San Nicolás...	160,000	160,000	10	10	16	6	9
Sociedad Industrial "La Estrella"	110,000	44,000	10	10	.....	.....	.....
Sociedad Ganadera de Junín...	110,000	124,186	100	100	13	.....	.....
Sociedad Agrícola Paramonga...	400,000	400,000	100	100	15	.....	.....
Ingenio Azucarero de Huaura...	35,000	21,000	10	4.5.00	.....	.....	.....
Ingenio Azucarero Corpacancha...	30,000	34,884	100	100	8	8	.....
MINES.							
New Chuquitambo Gold Mines (Ltd.)...	50,000	50,000	1	1	3½	5	.....
MANUFACTURING ENTERPRISES.							
Fábrica de Fósforos "El Sol"...	40,000	40,000	10	10	.....	.....	.....
Peruvian Cotton Mill Co. (Ltd.) (Vitarte)	100,000	80,183	.....	1	.....	10	.....
Fábrica de Sombreros "Fénix"...	9,963	9,963	1	1	8	.....	.....
Comp. Ind. A. Field y La Estrella (Ltd.)...	48,500	33,500	.....	10	.....	.....	.....
Soc. Curtbre a Vapor de Monserrate	17,200	17,200	10	10	.....	.....	.....
TRANSPORTATION COMPANIES.							
Empresa del Muelle de Tambo de Mora...	25,000	25,000	1	0.7.20	11	.....	.....
Compañía Peruana de Vapores y Dique del Callao...	300,000	300,000	1	1	.....	Lp. 0.1. 60	.850
PUBLIC-UTILITY ENTERPRISES.							
Empresa del Agua del Barranco...	20,000	20,000	10	10	6	6	.....
Empresa del Agua de Miraflores...	8,000	8,000	20	20	.....	6	.....
Empresa del Agua de Paíta y Colán...	6,000	6,000	0.9.60	0.9.60	8	4	.....
Empress de Agua Potable de Piura...	10,000	10,000	1	0.9.36	3	.....	.....
Empresas Eléctricas Asociadas...	1,500,003	1,771,898	5	5	.....	2	2.750
MISCELLANEOUS.							
Compañía Urbana Cochacarcas...	20,000	30,622	1	0.4.00	16	16	0.530
Compañía del Teatro Municipal...	7,650	8,530	10	10	.....	6	.....

a Fixed annual dividends.

URUGUAY.

MONTEVIDEO GAS CO. (LTD.).

Registered 1872. Has power to generate and otherwise deal in electricity, gas, and any other illuminating agent. The company has no concession.

Capitalization.—December 31, 1915: Shares (par £20), £600,000 authorized, £541,920 outstanding; 5 per cent perpetual first-mortgage debenture stock (interster January and July), £78,440 authorized; £28,680 outstanding.

Income account.—Year ended December 31, 1915: By sales of gas, residuary products, meter and cooker rents, profits on sales of gas fittings, etc., £143,043; expenditures, £115,417; balance, £27,626; balance brought forward from 1914, £13,255; total net income (including other income), £42,925; interest and other charges, including depreciation of investments, etc., £13,405; balance before payment of dividends, £29,519. Gross receipts for 1914, £123,818; net receipts, £23,962.

The financial condition of the company was excellent on December 31, 1915. Reserve account, £32,000; insurance fund, £12,500; contingency account, £17,739.

Dividends.—1899 to 1911, 3½ per cent annually; 1912 and 1913, 4 per cent; 1914 and 1915, 3 per cent.

Directors.—Charles Hunt, chairman; Frank H. Jones, John News, W. Edgar Horne, Frank H. Jones; secretary, Henry Kearns, 9 New Broad Street, London, E. C.

VENEZUELA.

BOLIVAR RAILWAY.

This company, registered 1896, operates a line of railway from the port of Tucacas on the Caribbean Sea to Barquisimeto, an interior city of some 40,000 inhabitants. The line was originally built from Tucacas to the Quebrada (now Aroa) Copper Mines (about 50 miles). Later this line was amalgamated with the Southwestern Railway of Venezuela, which was practically an extension of the Bolivar Railway (then known as the Quebrada Railway & Copper Co.), operating from a point near the terminus of the latter to Barquisimeto. A branch line (the San Felipe branch) is under construction; it will be about 28.5 miles in length, and will pass through what is believed to be the richest valley in Venezuela.

After leaving Barquisimeto, which is a center for the produce of the Northern Andine country, the railway begins a gradual climb until Duaca (a small town) is reached. From this point a valley capable of considerable cultivation is traversed. At El Hacha, where the branch to the Aroa mines joins the main line, the traffic is greatly increased, owing to the large shipments of copper ore that are sent to Tucacas. A portion of the line passes through wild forest country, which, a short distance back from the railway, is virtually an unexplored wilderness.

The Bolivar Railway owns an estate of about 250,000 acres granted by the Government of Venezuela. The estate is to be developed fully in the near future. In 1912-13 £10,234 was expended toward the development of the estate. The steamer *Barquisimeto* and about 10 barges, lighters, etc., are owned by this company.

CAPITALIZATION, JUNE 30, 1915.

Securities.	Authorized.	Issued.
Ordinary shares (par £1).....	£700,000	£683,200
Preference shares, 5 per cent noncumulative (par £1).....	300,000	292,800
6 per cent debenture stock (interest March and September).....	400,000	250,000

NOTE.—Securities are listed on the London Stock Exchange.

Dividends.—Preference: 1904-5 and 1905-6, 3 per cent; 1906-7, 2 per cent; 1907-8, none; 1908-9, 3 per cent; 1909-10, 3½ per cent; 1910-11, 1911-12, and 1912-13, 5 per cent; 1913-14, 5 per cent; and 1914-15, 3 per cent. In 1912-13 the ordinary stock received 2 per cent. The 1913-14 and 1914-15 preference dividends were paid in 6 per cent script convertible into 6 per cent debenture stock at par when conditions are such that debenture stock may be issued.

Income account.—Year ended June 30, 1915: Gross earnings, £87,497 (including £5,916 steamship earnings); operating expenses (including £5,831, cost of running steamers, and £3,254, London office expenses), £48,828; net revenue, £38,669; total net, £38,682; interest, income tax, etc., £19,821; estate development, £3,023; reserves, £7,000; surplus, £8,837; balance brought forward from June 30, 1914, £52,374; balance (surplus), £61,211. For the year ended June 30, 1916, gross receipts totaled £109,372.

In 1914-15 34,827,349 kilos of freight were handled, as compared with 48,582,318 kilos handled in 1913-14 (1,000 kilos=1 metric ton of 2,205 pounds).

Mileage operated.—June 30, 1915: 110 (not including 12 miles of San Felipe branch completed September, 1915).

Rolling stock.—Locomotives, 17; passenger-train cars, 17; freight and service cars, 312; motor cars, 3; steamers, 2; other floating equipment, 5.

Directors.—John Soame Austin, chairman; Nathaniel G. Burch, deputy chairman; Claude E. S. Bishop, Percy C. Quilter, James A. Goudge, John M. MacDonald; secretary, J. T. Dillon, 9 New Broad Street, London, E. C. General manager stationed at Pueblo Nuevo, Venezuela.

EL AMPERO MINE (LTD.).

Incorporated 1908 to take over the La Paz Mine, situated 12 miles east of Guacipati, capital of the Yuruari district, Venezuela (near the El Callao Mine). The area is 400 acres, heavily timbered, and the mine workings consisted in 1913 of a collection of about 25 shafts of depths varying from 30 to 90 feet. Good mining timber and firewood exist in the vicinity. A 10-stamp mill has been erected with a milling capacity up to 100 tons per day. The river and dredging concessions were acquired in 1914.

Capitalization.—Authorized, £104,000 ordinary shares (par £1); issued, £90,170 (£89,325 paid in), including £83,993 (fully paid) issued to vendors.

INCOME ACCOUNTS.

Items.	Year ended June 30—	
	1914	1915
Proceeds of gold, interest, rents, etc.	£18,739	^a £17,633
Expenses	14,645	^b 16,197
Profits	4,094	1,436
Production	5,016	2,808

^a Proceeds of gold, £17,228.

^b Expenses at mine, £11,059. Depreciation, £2,743 (12½ per cent).

Cash balance.—June 30, 1915: £6,894; gold on hand, £860; bills, etc., receivable, £620; sundry creditors, £533.

Directors.—H. E. M. Bourke, chairman; Gerald M. Browne, Cowley Lambert, J. A. Cipriani, Arthur Pomeroy; secretary, H. B. Cleford, 21 Great Winchester Street, London, E. C. Manager: Henry Cribb, Guacipati, Venezuela. Commercial agent: José Acquatella, Ciudad Bolívar, Venezuela.

LA GUAIRA HARBOUR CORPORATION (LTD.).

Registered 1886; reorganized 1896. The company has a concession in perpetuity, with exclusive rights until 1985 to own and operate a pier and general harbor undertaking at La Guaira, Venezuela. Extensive properties are owned and revenues are derived from lighterage, docking, handling of merchandise, and passengers, etc. The company also controls, through ownership of stock and income bonds, the Macuto & Coast Line Railway of Venezuela (Ltd.), operating a line of railway between La Guaira, Maiquetia, and Macuto, the last-named town being the principal seaside resort of the Republic. The line was formerly operated by steam but has recently been converted to electricity. Its securities are carried on the books of the La Guaira Harbour Corporation at £20,540.

Capitalization.—Ordinary shares (par £20), £400,000; 5 per cent first mortgage irredeemable debenture stock, £420,000; 5 per cent noncumulative second mortgage stock, £578,279; total, £1,398,279.

No dividends are being paid on the ordinary shares, and interest on the second mortgage stock has been paid in recent years as follows: 1912, 2 per cent; 1913 and 1914, 2½ per cent each; 1915, 2½ per cent.

INCOME ACCOUNTS.

Items.	1912	1913	1914	1915
Gross receipts	£66,258	£74,411	£70,901	£65,347
Expenses	35,107	38,043	34,954	30,598
Net revenues	31,151	36,368	35,948	34,749
Surplus after first mortgage debenture interest		15,943	16,087	14,660
Tonnage handled at port	106,927	117,635	112,086	105,775
Passengers	13,924	17,671	13,273	8,216

Gross receipts in 1916 totaled £70,571 and in 1917 £74,085. The surplus for 1917, after first-mortgage debenture interest, totaled £13,817.

Directors.—Capt. W. B. McTaggart, chairman; Teofilo Rojas (representative of the British Government); T. H. Evans; Lieut. Col. F. M. Carleton, D. S. O.; J. G. B. Stone; Col. Claude Lowther, M. P.; secretary, E. J. Summers, 6 Broad Street Place, London, E. C. General manager: W. H. Andrews, La Guaira, Venezuela.

MACUTO & COAST LINE RAILWAY.

This railway, operated by electricity (until recently operated by steam) extends from La Guaira (where connections are afforded with the La Guaira & Caracas Railway) to Marquetia and Macuto. This is a passenger line handling the traffic to and from Macuto, the principal seaside resort of Venezuela (about 6 miles operated). The shares and debentures of this company are owned by the La Guaira Harbour Corporation (which see) and are carried on the latter's books at cost, £20,540.

Net revenues for 1914-15 (year ended September 30) were £2,163, as compared with £3,072 in 1913-14 and £591 in 1912-13. No dividend was paid on ordinary stock in 1914-15; 3 per cent was paid in 1913-14.

Directors.—See La Guaira Harbor Corporation (Ltd.).

NATIONAL MATCH FACTORY OF VENEZUELA (LTD.).

Registered 1905 as the Venezuela Match Monopoly (Ltd.); reregistered under present title during 1909. The company has acquired, at a cost of £206,765, the shares (5,499,000 bolivares of a total of 5,500,000 bolivares outstanding) of La Compañía Anónima Fábrica Nacional de Fósforos, which has a monopoly of the manufacture and sale of matches of all kinds within the Republic of Venezuela until 1929. The shares acquired have subsequently been canceled, and the business is now carried on directly by the National Match Factory of Venezuela proper.

Capitalization.—Shares authorized, £220,000 (par £1); outstanding, £219,967.

Cash on hand August 31, 1915 (latest figures obtainable), £10,196; loans, etc., receivable, £21,156; reserve account, £10,500; creditors, £5,321.

INCOME ACCOUNTS.

Items.	Year ended August 31—				
	1911	1912	1913	1914	1915
Gross receipts.....	£46,282	£50,094	£51,836	£57,546	£56,162
Balance forward from previous year.....	677	418	1,666	1,282	1,168
Profits applicable to dividends and reserves.....	13,318	17,866	18,752	18,068	15,912
Transferred to reserves.....	3,000	3,000	3,000	1,500	None.
Dividend paid.....per cent..	4½	6	6½	7	7

Directors.—O. H. Fuerth, H. Maubourguet, A. Pam, T. M. C. Steuart; secretary, A. R. Bennett, 65 Bishopsgate, London, E. C. Other offices: Paris and Caracas (Venezuela).

NEW CALLAO GOLD MINING CO. (LTD.).

Registered, 1912, in France. Acquired properties from a previously operated company located at El Callao, in the Yuruari Valley, Venezuela.

Capitalization.—Shares, £300,000 authorized, £265,000 outstanding; debentures, 6½ per cent, £60,000 outstanding.

Income accounts.—Not yet published.

Directors.—Col. E. Aries, D. Carpentier, A. Delarbe, A. Fraisse, V. Franchische, G. Gratioux, A. Picard, G. Prudhomme (all of Paris, France). London office: 4 Cullum Street, London, E. C.

PUERTO CABELLO & VALENCIA RAILWAY CO. (LTD.).

Registered 1885. Line extends from Puerto Cabello to Valencia, Venezuela (34 miles). Opened for traffic 1888. There is no option for Government pur-

chase. Report for 1915 claims £350,761 from Government as guaranties for years 1905 to 1915; these claims are to be settled by arbitration.

INCOME ACCOUNTS.

Items.	1913	1914	1915
Gross receipts.....	£43,750	£40,040	£42,677
Expenses.....	25,121	26,654	27,544
Net revenues.....	18,629	13,386	15,133

Miscellaneous income, 1915, £702; total net income, £15,835; amount carried forward from 1914, £383; interest paid, 5 per cent on first-charge debentures and $4\frac{1}{2}$ per cent on second-charge debentures, £7,650; balance, £69; debit balance to revenue account, £11,926.

Capitalization.—£460,000 ordinary shares, par £10; £170,000 first-charge 5 per cent coupon bonds due 1955 (£20,000 additional in treasury), par £50 and £100; £170,000 5 per cent second-charge debenture stock; total, £820,000. The first-charge bonds are redeemable at par at company's option. The second-charge debenture stock receives interest when earned, this interest being cumulative. Interest has been paid as follows: 1 per cent in 1905; 8s. 4d. in 1910; 16s. in 1911; $4\frac{1}{2}$ per cent in 1912; 5 per cent in 1913; $3\frac{1}{2}$ per cent in 1914; $4\frac{1}{2}$ per cent in 1915.

Coffee, meat, and coal were the principal commodities handled in 1915.

Equipment.—December 31, 1915: Locomotives, 11; passenger-train cars, 13; freight cars, 96; other cars, 2.

Directors.—Nathaniel G. Burch, chairman; Samuel Watkinson, John Matheson Macdonald; G. A. P. Pilditch, managing director and secretary, Finsbury Pavement House, London, E. C. General manager: W. A. Littell, Valencia, Venezuela.

UNITED ELECTRIC TRAMWAYS CO. OF CARACAS (LTD.).

Registered 1906. A holding company of the shares (1,272, of a value of £168,245) and of a mortgage (6 per cent per annum, value £170,000) of the Compañía de Tranvías Eléctricos de Caracas. The latter company operates about 16½ miles of electric tramway lines in the city of Caracas, Venezuela.

Capitalization.—Shares, £200,000 authorized and £170,000 outstanding, par £1; 5 per cent first-mortgage debenture stock due 1950, £200,000 authorized and £170,000 issued, of which £163,250 remained outstanding June 30, 1915. There is a sinking fund of $\frac{1}{2}$ per cent per annum purchasing this debenture stock in the market or calling same at not more than 105.

The results of operating the line were as follows: Gross receipts—1914-15, 1,426,679 bolívares; 1913-14, 1,550,587 bolívares. Net receipts—1914-15, 693,665 bolívares (£27,471); 1913-14, 801,967 bolívares (£31,761).

Of the profits for 1914-15, 50,000 bolívares were transferred to reserve and the balance paid to the holding company as interest and dividend. Including other income, the holding company received £25,333, of which £10,896 was paid as interest, sinking fund, and other expenses. The surplus was £14,543. Passengers carried during 1914-15 numbered 4,992,210 (1913-14, 5,391,809). Cars in service, 48.

Dividends.—1912-13, 5 per cent; 1913-14, 11 per cent; 1914-15, 7 per cent and $\frac{1}{2}$ per cent extra.

Directors.—Maj. Gen. Ivor Philipps, D. S. O., M. P., chairman; Sir Douglas Fox, Percy Cross, London; Edgar Allan Wallis, Caracas, Venezuela; secretary, A. J. Shepherd, 9 New Broad Street, London, E. C.

VENEZUELA ELECTRIC LIGHT CO. (LTD.).

This company owns electric lighting and gas plants in Caracas, Venezuela. The company holds an exclusive contract to light the city of Caracas until 1937. Two hydroelectric stations are owned. The property is operated by the J. G. White Co. (Ltd.) as managers, and is controlled by the International Light & Power Co. (which see).

Capitalization.—\$900,000 stock and \$900,000 first-mortgage debenture stock (all securities owned by the International Light & Power Co. (Ltd.), of Canada).

Income account.—Year ended June 30, 1915: Net earnings, £22,210 (£22,759 in 1913-14); deductions for renewals and general reserves, £4,058; surplus carried to balance sheet of International Light & Power Co., £18,152 (£18,514 in 1913-14).

Directors.—See International Light & Power Co.

VENEZUELA TELEPHONE & ELECTRICAL APPLIANCES CO. (LTD.).

Registered 1890 as successor to the Inter-Continental Telephone Co., of New Jersey, U. S. A. The company's concession gave exclusive privileges until 1914. These privileges have not been renewed. The ownership of the property is perpetual, however.

CAPITALIZATION, JUNE 30, 1915.

Securities.	Author- ized.	Out- standing.
Ordinary shares (par £1)	£70,000	£70,000
Cumulative 8 per cent preference shares	15,000	8,600
6 per cent prior lien debentures (matured July 1, 1915; payment of principal deferred) ..	30,000	30,000
5 per cent first mortgage debentures (due Oct. 1, 1925)	70,000	70,000
7 per cent second mortgage debentures (due 1940)	20,000	20,000

^a Includes £7,100 deposited as security against loan. Secured loans amounted to £22,338

Telephone receipts.—Years ended June 30: 1900, £23,892; 1905, £22,768; 1910, £24,393; 1911, £25,854; 1912, £27,967; 1913, £31,648; 1914, £34,824; 1915, £37,612.

Income account.—Year ended June 30, 1915: Receipts, including other income, £39,736; net income, £17,644; operating and London office expenses, £22,092; interest and income tax, £7,676; surplus, £9,968. A total of £10,434 was carried forward from 1913-14, making surplus £20,401. Out of this surplus £2,580 (less income tax) was paid as a dividend of 30 per cent on the cumulative preference shares, liquidating dividends in arrears to December 31, 1906. In addition, £6,000 was credited to reserve for renewals and depreciation.

Directors.—Sir Douglas Fox, chairman; J. S. Austin, C. E. S. Bishop, H. S. Simmonds; secretary, R. J. Beevor, 9 New Broad Street, London, E. C.

Appendix B.—CENTRAL AMERICA AND THE WEST INDIES.

COSTA RICA.

COSTA RICA COFFEE ESTATES (LTD.).

Registered 1897. Owns large coffee estates in the Republic of Costa Rica. About 365 acres are under cultivation.

Capitalization.—June 30, 1914 (latest available): Stock (par £10), £50,000 authorized, £30,560 outstanding; debentures, £10,000 authorized, £5,000 outstanding (an additional £4,000 deposited as security for loans); loans, £10,750 outstanding.

Income account.—Year 1913–14 (latest reported): Receipts, £3,946; expenses, depreciation, etc., £6,348; loss, £2,402; debit balance to carry forward, £10,186.

Dividend.—A 3 per cent dividend was paid in 1903–4; none since.

Directors.—A. J. Shepherd, chairman; Kenneth Reid, Dr. A. F. Pirie; secretary, R. J. Beevor. Office: 9 New Broad Street, London, E. C.

COSTA RICA ELECTRIC LIGHT & TRACTION CO. (LTD.).

Registered 1898. Operates electric lighting and electric tramway properties located in the city of San Jose and in the central valley of Costa Rica. The tramway line is 10 miles in length. The municipality of San Jose will take over the tramway lines, without cost, in 1956, the lighting undertaking remaining the property of the company in perpetuity.

Capitalization.—June 30, 1915: Authorized and issued, £130,000 ordinary shares (par £1); prior lien 6 per cent debentures, £98,900 (£1,100 additional redeemed out of sinking fund), sinking fund suspended until one year after close of European war, issue to be retired on or before July 1, 1954; 5 per cent first debentures, £230,000 authorized, £197,150 issued, £187,750 outstanding (balance retired through sinking fund, which was suspended 1912 to 1916), principal repayable on or before January 1, 1948.

Income account.—Net earnings, 1914–15, £21,663; interest, discount, London expenses, etc., £17,839; balance, £3,824; net earnings, 1913–14, £26,352; profits, £8,057; profits, 1912–13, £7,338; 1911–12, £5,732. The earnings in 1914–15 were affected by adverse exchange conditions.

Directors.—W. F. Leese, Frederick Davies, F. M. Crisp, C. A. Vansittart, F. Witting; secretary, I. Zillhardt, 9 New Broad Street, London, E. C. Costa Rica office: San Jose.

HONDURAS.

ANTIGUA GOLD & COPPER CO.

Hibernia Bank Building, New Orleans, La. Mine located at Minas de Oro, Comayagua, Honduras. Owns approximately 531 acres of land carrying gold, silver, and copper.

Capitalization.—\$2,000,000; par \$5.

Officers.—O. M. Dunn, president; James L. Wright, vice president; L. S. Scott, secretary and treasurer.

NICARAGUA.

BABILONIA GOLD MINES (LTD.).

Registered December, 1911. Owns three mining claims—the Crimea, the Babilonia, and the Santa Maria—located at La Libertad, Chontales District, Nicaragua. Tons milled, 7,675. Ore reserves, December 31, 1914, estimated at £59,980.

Capitalization.—£200,000 shares authorized, £170,007 outstanding; par £1.

Operating results.—Year 1914 (after depreciation), loss £17,274; year 1913, profit £3,705; debit balance carried forward, £13,400.

Directors.—T. J. Hoover, chairman; J. A. Agnew, J. H. Corder-Jones, A. F. Kuehn, A. Pomeroy; secretary, G. G. Hay, 1 London Wall Buildings, London, E. C.

CENTRAL AMERICA GOLD FIELDS SYNDICATE.

Registered 1914. Acquired options on five groups of gold mines in Pis Pis district of Nicaragua. Not worked at present.

Capitalization.—£5,000 stock, par £1, and £10,000 7 per cent notes (income). Secretary: G. G. Hay, 1 London Wall Buildings, London, E. C.

CENTRAL AMERICAN MINES (LTD.).

Registered 1913 as a reconstruction of the Oroya Leonesa (Ltd.). Owns gold-mining properties near Matagalpa, Nicaragua. A 20-stamp mill and various plants have been erected.

Capitalization.—£150,000 shares, par 5s.; 6 per cent debenture bonds, £35,000, redeemable at par November 30, 1917, convertible into shares at par until redemption.

Yield for 13 months ended December 31, 1914, £38,279 (31,556 tons). Ore reserves, 83,606 tons.

Directors.—T. J. Hoover, chairman; J. A. Agnew, J. H. Corder-Jones, A. F. Kuehn, A. Pomeroy, W. F. Turner; secretary, G. G. Hay, 1 London Wall Buildings, London, E. C. Manager at mine: C. E. Bunker.

SALVADOR.

BUTTERS SALVADOR MINES (LTD.).

Registered 1912 in Canada to take over assets of a British company of same name. Assets transferred in 1914. Properties consist of an area of 547 acres of gold-bearing lands, situated not far from Santa Rosa, Salvador.

Capitalization.—\$750,000 United States gold; par \$5. fully paid.

Dividends.—1903-4, 55 per cent; 1904-5, 40 per cent; 1905-6, 55 per cent; 1906-7, 75 per cent; 1907-8, 80 per cent; 1908-9, 68½ per cent; 1909-10, 45 per cent; 1910-11, 41½ per cent; 1911-12 and 1912-13, 35 per cent each; 1914, 17½ per cent; 1915, January \$0.25 regular and \$0.12 extra, April, July, and October \$0.25 each, total for year \$1.12 or 22½ per cent; 1916, 22½ per cent.

Income account.—Year ended June 30, 1914 (report submitted December, 1915): Gross, \$504,580; net, \$116,041; dividends, \$92,062; carried forward, \$110,264.

Office: 232 St. James Street, Montreal, Canada, and 120 Broadway, New York.

See page 447.

MONTE MAYOR GOLD & SILVER MINING CO.

Registered 1911. Acquired the Monte Mayor Mines, covering an area of about 4 square miles, located near Santa Rosa, Salvador.

Capitalization.—Preference shares, £30,000 authorized, £20,297 outstanding. The preference shares are entitled to 15 per cent per annum until May, 1918, when they become ordinary shares. A dividend of 4 per cent was paid on the preference shares in 1912; none since.

No income account or balance sheet is published at present.

Directors.—J. P. Clarkson and E. L. Pullinger, London; F. Macay and E. H. Pullinger, Salvador; secretary, St. J. Bennett. Office: 16-17 Devonshire Square, Bishopsgate, London, E. C.

BRITISH WEST INDIES.

ANGOSTURA BITTERS—J. G. B. SIEGERT & SONS (LTD.).

This company handles the manufacture and sale of Angostura bitters and other cordials. With the exception of products of the sugar industry this is practically the only manufactured export of Trinidad. The total exports of bitters from the colony in 1915 amounted to 27,742 gallons.

Capitalization.—Authorized and outstanding, £85,000 6 per cent cumulative preference shares and £85,000 ordinary shares, par £1.

Dividends for the past several years have averaged 6 to 6½ per cent per annum. Reserve funds, 1913–14, £9,293; carried forward, £1,332.

Directors.—A. Henderson, chairman; R. F. Henderson, Capt. A. Lund, R. H. McCarthy, A. C. Siegert, A. G. Siegert; secretary, H. E. Perks. London address: Spencer House, South Place, E. C.

BARBADOS ELECTRIC SUPPLY CORPORATION (LTD.).

Registered 1909. The corporation, which was granted the right to construct an electric supply plant and station at Bridgetown, Barbados, has an exclusive franchise until 1949. This franchise covers all territory within 5 miles of the city. The company is supplying a large portion of the public lighting of Bridgetown, and has also obtained a contract from the government for lighting the wharves and Inner Basin. As of June 30, 1915 (latest report obtainable), there were 997 consumers, as compared with 737 in 1914, 456 in 1913, and 247 in 1912. A total of 15,036 lamps and motors were connected, as compared with 5,201 as of June 30, 1912.

Capitalization.—June 30, 1915: Preference shares, 7 per cent and participating, £40,000 (par £1); ordinary shares, £20,000 (par £1); loan secured by an issue of 7 per cent debentures, £10,000.

INCOME ACCOUNTS.

Items	Year ended June 30—		
	1913	1914	1915
Profit on sale of power, etc.....	£457	£1,381	£2,231
London fees, interest, etc.....	1,684	1,823	1,728
Profit or loss for year.....	—1,227	—442	+503

Directors.—A. W. Tait, chairman; G. H. J. Hooghwinkel, William C. Kenny, W. F. Leese, London, England. Advisory committee in Barbados: Hon. Sir William Chandler, Hon. J. P. Wright, Bridgetown. London office: Basildon House, Moorgate Street, E. C.; Bernard Heyburn, secretary.

DOMINICA FORESTS & SAWMILLS (LTD.).

Registered 1911. Acquired 12,500 acres of timberlands in the island of Dominica and option over additional lands, warehouses, etc. The company has planted coconut and lime trees and has partly suspended timber operations.

Capitalization.—£80,000 shares authorized (par 5s.), outstanding, £59,280; £5,000 5 per cent first debentures (par £1) have been authorized and offered for subscription at 72 per cent.

Income account.—Year ended March 31, 1915 (submitted March, 1916): Loss on working and expenditures in London, £1,112; debit balance to profit and loss, £7,888.

Directors.—H. E. Carter, chairman; C. P. Bennett, C. Temperley, A. B. Raper. Office: 53 Palmerston House, Old Broad Street, London, E. C.

GENERAL OIL FIELDS (LTD.).

Registered 1912. Acquired 1 square mile of oil properties located in the Palo Seco district, Trinidad (recently an oil property in Newfoundland was acquired).

Capitalization.—Authorized, £70,000, including £30,000 ordinary (par 5s.) and £40,000 deferred (par 1s.). The ordinary shares will receive all dividends up to 10 per cent and one-half the balance. Thus far, 21,507 ordinary and 500,000 deferred shares have been issued.

Income account.—None has been published as yet. Capital expenditures December 31, 1915, £25,411; general expenditures, £2,160; investments, £2,080; advances, etc., £720; cash, £258; calls in arrears, £180; creditors and temporary advances, £2,150.

Directors.—H. A. Clifton, A. A. G. Kendall, H. F. G. Weber; secretary, P. C. Bird, Finsbury Court, London, E. C.

MONTSERRAT CO. (LTD.).

This company, incorporated 1875, owns large lime plantations on the island of Montserrat and on other islands of the Leeward and Windward groups. It carries on an extensive business in bottled lime juice. Its properties in Great Britain are located at Birmingham.

Capitalization.—Shares authorized, £29,180; outstanding, £13,880 (£9,369 paid in); debentures, £1,000.

Income account.—Year ended June 30, 1916: After the payment of a dividend of $7\frac{1}{2}$ per cent, there remained to be carried forward £810. Reserve funds, £10,607.

Dividends.—1906-7, 30 per cent; 1907-8, 35 per cent; 1908-9, 10 per cent; 1909-10 and 1910-11, 20 per cent each; 1911-12, $12\frac{1}{2}$ per cent; 1912-13, 15 per cent; 1913-14, 10 per cent; 1914-15, $7\frac{1}{2}$ per cent.

Directors.—W. A. Albright, chairman; R. Clark, W. King, A. T. Little, F. A. Sturge, J. Sturge (managing director). Offices: 2 Gas Street, Birmingham, England; Plymouth, Montserrat, British West Indies.

NEW TRINIDAD OIL CO.

Registered 1915. Acquired the property of the Trinidad Silverstream Oilfields (Ltd.), consisting of about 1,100 acres of oil lands, the properties being known as Malgretout, Mon Desir, and Silverstream.

Capitalization.—£75,000 authorized (par 5s.).

Accounts not yet published.

Directors.—F. King, J. K. Kelty, J. Sinclair; secretary, D. M. Purkins, 26 Victoria Street, Westminster, S. W., London.

OIL EXPLORATION CO. OF TRINIDAD (LTD.).

Registered 1915. Acquired from the International Oil Lands (Ltd.) large oil-bearing areas in Trinidad (approximately 1,040 acres).

Capitalization.—£80,000 shares authorized (par £1), £45,010 outstanding.

Income accounts not yet published.

Directors.—H. A. C. Bonar, J. Conchie, E. Nash; secretary, E. Ronaldson, 62 London Wall, London, E. C.

PETROLEUM OPTIONS (LTD.).

This company, registered in 1908, holds approximately 47,000 ordinary shares of the Trinidad United Oilfields (Ltd.) (total ordinary shares outstanding, £180,000, par £1). The investments held by the Petroleum Options (Ltd.) were valued on its books as of December 31, 1914, at £15,085, while the property of the company in Trinidad was valued at £7,487.

Capitalization.—Ordinary shares, authorized £30,000, outstanding £14,857; preference shares, 10 per cent noncumulative (par 5s.), £15,000. There are also outstanding first-mortgage debentures, with interest, £1,486. In 1915 additional shares were issued.

Profit and loss account from December 1, 1911, to December 31, 1914, showed a balance of profit (subject to realization of shares at their estimated values) amounting to £835.

Directors.—A. A. G. Kendall, chairman; H. Weber, A. Vernon Davis, H. A. Clifton; secretary, P. C. Bird. Office: Finsbury Court, London, E. C.

SOUTH NAPARIMA (TRINIDAD) OIL CO. (LTD.).

Registered 1910. Acquired about 1,044 acres of oil-bearing lands located at Barrackpore Settlement, South Naparima Ward, Trinidad. Later sold 297 acres, including two producing wells, to the Venezuelan Oilfields Exploration Co. (Ltd.), for £15,000 cash and £30,000 in preference shares and an annual royalty of 5 per cent on oil produced. The rest of the property is to be disposed of to the Trinidad Oil & Transportation Co. (Ltd.) for £66,000 in shares.

Capitalization.—£50,000 shares authorized, £47,100 outstanding.

Directors.—J. S. Smith-Winby, chairman; L. E. Agostin, R. H. McCarthy, Hugh McLelland, Frank Martin; secretary, A. O. Chudleigh, 48 Cannon Street, London, E. C.

TRINIDAD CENTRAL OIL FIELDS (LTD.).

Registered 1911. Acquired property licenses over 26,000 acres of oil lands at Tabaguite, Trinidad. Twenty-three wells have been sunk, and in 18 oil has been found. The company has erected storage tanks and is in a position to handle large shipments.

Capitalization.—Authorized £110,000 shares, outstanding £94,200 shares (par £1), of which £50,000 are fully paid and the remainder 87½ per cent paid in.

Income account.—Year ended April 30, 1915, showed a net profit of £1,910, as compared with £379 in 1913–14. Cash on hand, £7,045; stores, £3,895; debtors, £516; stock of oil, £3,367; creditors and bills payable, £2,470.

Directors.—A. Duckham, chairman; P. M. Stewart, H. C. B. Underdown: secretary, R. A. Longcroft, 79 Bishopsgate, London, E. C.

TRINIDAD LEASEHOLDS (LTD.).

This company was registered in 1913. It acquired a lease of oil lands in the island of Trinidad, area about 81 square miles, and a further exploration license over 20,000 additional acres. About 65,000 acres are held at present. A number of wells are producing, mostly on the properties acquired from the Trinidad Forest Reserve Oil Co. (Ltd.). A 26-mile pipe line, tanks, and a refining plant are owned. Production commenced May, 1914. For the first 13 months the production totaled 103,000 barrels.

Capitalization.—Shares authorized, £500,000; outstanding, £417,500. Loans, 6 per cent, due June 30, 1917, £135,000.

Income account not yet published.

Directors.—T. J. Milner, chairman; R. H. McCarthy, J. L. Siddall, A. W. Rogers, Maj. H. L. Sante. Office: 1 London Wall Buildings, London, E. C. Manager in Trinidad: H. S. Fuller. Trinidad office: 76 Marine Square, Port of Spain.

TRINIDAD OIL & TRANSPORT CO. (INC.).

Registered December, 1913, and reregistered April, 1914. Acquired the Trinidad properties of the Venezuela Oilfields (Ltd.) (previously acquired by this company from the South Naparima Co), total 346 acres, and at the same time arranged to take over the properties operated by the South Naparima Oil Co. (743 acres). Seven wells have been sunk on the lands acquired from the Venezuelan company, their depth varying from 291 to 1,803 feet. From five of these wells 67,861 barrels of oil were produced during 1915. In addition, 8,716 barrels were produced on other properties. The production was, however, limited to the available storage facilities. Property (49½ acres) located at Pointe-a-Pierre, on the Gulf of Paria, has been leased for 37 years. A pipe line will be constructed to this port.

Capitalization.—Shares authorized, £300,000; outstanding, £49,174; reserved to be issued to the South Naparima Oil Co. (Ltd.), £66,000; bills payable, £34,318; creditors, £5,930; value of property acquired or under option, £137,053; material, stores, etc., £5,243; cash, £1,126; sundry debtors, £1,637; oil, etc., £4,623.

Income account.—1915: Gross receipts, £11,958 (1914, £2,669); operating expenses and depreciation, £7,690; profits, £4,269; rents, salaries, amounts written off, etc., £4,872.

Directors.—W. W. Rutherford, M. P., R. F. Strachan; secretary, A. O. Chudleigh, 48 Cannon Street, London, E. C.

EDITOR'S NOTE.—A word of explanation seems desirable with regard to such enterprises as are mentioned both in the main text of Special Agent Halsey's report and in the foregoing appendixes. The statements in the appendixes are mostly based on conditions at a time not later than December 31, 1915. While this book was in press figures became available, in certain instances, for 1916, 1917, or even for the fiscal year ended June 30, 1918. These recent figures have been inserted in the main body of the report, with the intention of bringing all statistics as nearly up to date as possible. However, it has been deemed inadvisable and impracticable to duplicate such new figures in the appendixes. In the case of the relatively few companies to which these remarks apply, the earlier figures given in the appendixes are regarded as supplementing those in the report proper and facilitating a more ample, comprehensive survey of developments.

Appendix C.—INTERNATIONAL ENTERPRISES AND GENERAL DATA.

MERCANTILE, PUBLIC UTILITY, AND SHIPPING COMPANIES.

FALKLAND ISLAND CO.

Chartered 1851. Purchased a large portion of the Falkland Islands. Raises and markets sheep in large quantities and does a general business.

Capitalization.—Preference shares (5 per cent cumulative), £33,000; ordinary shares, £110,000 (par in both classes, £10).

Dividends.—On ordinary shares: 1903, 15 per cent; 1904, 20 per cent; 1905, 25 per cent; 1906, 35 per cent; 1907, 30 per cent; 1908, 25 per cent; 1909, 30 per cent; 1910 to 1913, inclusive, 35 per cent; 1914, 40 per cent.

No income account is made public. Reserve funds, £53,500. Carried forward, £9,677.

Directors.—F. E. Cobb, chairman; R. H. Cobb, R. Blake, W. M. Dean, M. E. Hughes-Hughes, A. W. Lafone; secretary, E. B. Goddard, 61 Gracechurch Street, London, E. C. Office also at Port Stanley, Falkland Islands.

INTERNATIONAL LIGHT & POWER CO. (LTD.).

This company was chartered in 1913 under the laws of the Dominion of Canada and owns all the stock and debentures of (1) the Venezuela Electric Light Co., (2) the Compañía Luz y Fuerza de Parana (of Argentina), (3) the Compañía de Electricidad de Merida. The operations of (1) and (2) are described under their respective heads. The companies are operated under the management of J. G. White & Co. (Ltd.).

Capitalization.—June 30, 1915: 6 per cent cumulative preference shares, \$10,000,000 authorized, \$1,000,000 outstanding; ordinary shares, \$10,000,000 authorized, \$3,000,000 outstanding; 5 per cent sterling first-mortgage debentures, £400,000 authorized, £300,000 outstanding (an additional £100,000 due the vendors as per purchasing agreement). The preference shares were largely disposed of in 1913 at £18 per share with bonus of \$60 in ordinary shares.

INCOME ACCOUNTS.

Items	Year ended June 30—	
	1914	1915
Interest, dividends, etc., received:		
Venezuela Electric Light Co.	£23,084	£18,153
Compañía de Electricidad de Merida	8,802	2,599
Compañía Luz y Fuerza de Parana	9,565	7,797
Total, including transfer fees, etc.	41,573	28,551
Interest and other charges paid	17,859	18,281
Balance (surplus)	23,714	10,273

Regular dividends at the rate of 6 per cent per annum have been paid on the preference shares.

Directors.—Follett Holt, president; George M. Booth, William C. Burton, A. N. Connett, Francis M. Voules; secretary, E. A. Borel. Office: 9 Cloak Lane, Cannon Street, London, E. C.

KOSMOS (GERMAN) STEAMSHIP CO.

This company, under normal conditions, operated a line of steamers between Germany, Belgium, and the various ports of South America (particularly the west coast), Central America (west coast), Mexico, etc. Steamers stopped at most local ports. The service has been abandoned owing to the war.

Capitalization.—\$3,332,000 shares (year 1913). Reserves, \$2,633,265; bills receivable, \$1,345,674; cash and other assets, \$4,449,337.

Gross earnings.—\$1,514,069 (year 1913).

Dividends.—1912, 14 per cent; 1913, 16 per cent.

ORIENTAL MAIL STEAMSHIP CO. (TOYO KISEN KAISHA).

This company, incorporated in Japan 1896, operates a fortnightly steamship service between Yokohama, Japan, and the west coast of South America. Salina Cruz, Callao, Iquique, Valparaiso, and Coronel are called at. In addition, the company operates a monthly service between Japan and San Francisco (three steamers, 13,000 to 14,000 tons). The steamers in the South American service vary in gross tonnage from 5,000 to 9,300, and in speed from 12 to 17 knots. Thirteen steamers were in service in January, 1914, with a gross tonnage of 88,000.

Capitalization.—December 31, 1913: \$4,855,000 United States gold (\$6,474,000 authorized). Reserves, \$447,556.

INCOM ACCOUNTS.

Items.	1912	1913
Gross receipts.....	\$2,516,806	\$2,844,186
Subsidies.....	1,674,765	1,643,783
Total receipts.....	4,191,571	4,487,949
Operating expenses.....	3,741,191	4,091,421
Net earnings.....	450,380	396,528
Balance carried over.....	3,540	1,234
Amount available for dividends.....	453,920	397,762
Dividends.....	a 414,336	b 373,874

a 10 per cent on \$4,143,360 stock.

b 7.7 per cent.

Office: Yokohama, Japan.

PACIFIC STEAM NAVIGATION CO. (LTD.).

This company was incorporated in Great Britain in 1840, being founded by William Wheelwright, of Newburyport, Mass. Wheelwright first made attempts to interest American financiers in his scheme, but was finally compelled to go to Great Britain for financial aid. The company, in later years, has been controlled by the Royal Mail Steam Packet Co. and operates between Liverpool, Panama, Callao, and Valparaiso, as well as local ports on the west coast of South America.

Capitalization.—£1,500,000 shares, all held by the Royal Mail Steam Packet Co.

The subvention received from Great Britain is £32,000, including £2,500 from the Falkland Islands. Formerly the company received an annual sum from the Chilean Government, but this has been discontinued and valuable privileges at the Government dock at Valparaiso substituted therefor.

The book value of the fleet (35 ships) is \$10,423,566 (United States gold), and the total tonnage is 197,787.

Dividends.—In 1914, 6 per cent (\$437,985).

Directors.—T. Rome, chairman; J. C. Nicholson, J. Cameron Head, W. C. Kenny, A. C. Lubbock, Sir O. C. Phillips, Sir J. Savory, Bart., A. S. Williams. General manager: R. R. Lamb, Valparaiso, Chile. Secretary: T. H. Darlington. Office: 31 James Street, Liverpool, England.

ROYAL BELGIAN ARGENTINE STEAMSHIP CO.

This company, incorporated 1906, owned four steamers (1,800 to 3,000 net tons) and was building others at the outbreak of the war. Additional ships were chartered, and service was maintained between Antwerp and Buenos Aires.

Capitalization.—5,000,000 francs shares; loans, 2,000,000 francs (from the Belgian Government). Shares listed on Brussels Bourse.

Head office (year 1914): Antwerp, Belgium.

STATISTICS OF IMPORTANT LATIN-AMERICAN BANKS.

The following table gives statistics with regard to six of the most important banking institutions in the Latin-American field:

Banks.	Capital and reserves.		Deposits.	
	1915-16	1916-17	1915-16	1916-17
Anglo-South American.....	£3,833,827	£3,833,827	£9,076,322	£14,114,982
Banco Español del Río de La Plata.....	12,903,750.	12,929,845	17,494,107	21,563,046
British Bank of South America.....	2,093,383	2,095,174	7,502,838	8,029,128
Commercial Bank of Spanish America.....	307,417	294,536	125,740	110,025
London and Brazilian.....	2,650,000	2,650,000	8,480,897	8,602,124
London and River Plate.....	3,800,000	8,800,000	20,581,475	20,369,465
Total.....	25,588,377	25,603,382	63,261,379	72,788,770

Banks.	Cash.		Investments.		Discounts and advances.	
	1915-16	1916-17	1915-16	1916-17	1915-16	1916-17
Anglo-South American..	£2,184,625	£3,037,453	£1,840,383	£2,200,333	£13,424,098	£18,816,402
Banco Español del Río de La Plata.....	7,755,246	7,474,521	767,328	775,805	19,459,221	21,156,052
British Bank of South America.....	3,441,908	2,954,927	.....	.....	9,721,404	11,620,639
Commercial Bank of Spanish America.....	33,352	36,819	42,641	41,976	397,072	382,480
London and Brazilian....	5,498,060	6,359,940	.....	.....	7,040,968	6,459,540
London and River Plate.	9,519,149	8,267,245	.....	.....	20,759,089	21,242,530
Total.....	28,432,340	28,130,905	2,650,352	3,018,114	70,801,852	79,677,643

The following table gives the quotations of the shares of four British South American banks:

Banks.	Amount of share.	Paid up per share.	Price, July 30, 1914.	Price, Sept. 30, 1916.	Price, Sept. 30, 1917.	Yield.
Anglo-South American.....	£10	£5	£7½	£6½	£7½	Per cent. 6
British Bank of South America.....	20	10	22½	18½	18	6½
London and Brazilian.....	30	10	29½	25½	24	6½
London and River Plate.....	25	15	49	39	35	6¾

The data concerning the banks mentioned in this appendix have been largely taken from the London Economist of October 20, 1917. The banks of South and Central America have been discussed at length in the various chapters of this monograph, but it is believed that complete balance-sheet statements of a number of the more important institutions will prove of value to those interested in the banking situation.

BRITISH BANK OF SOUTH AMERICA (LTD.).

The report for the financial year ended December 31, 1916, states that the gross profits, after allowing for rebate of interest on current bills and drafts, for interest on deposits, and making ample provision for bad and doubtful debts and contingencies, amounted to £324,631; this, with the balance of £90,784 brought forward from the previous year, made £415,415. After deducting all charges of the head office and branches, amounting to £181,825, income tax and Government taxes in Brazil and the River Plate (together £23,351), there remained £210,239 available. A dividend on account of 10s. per share, amounting

to £50,000, was paid in September, 1916, and it was recommended that a further dividend of 14s. per share be declared payable on April 20, making for the year a distribution of 24s. per share, or 12 per cent, subject to income tax, on the paid-up capital of the bank of £1,000,000. After paying the above dividend there remained the sum of £90,239, which the directors carried forward.

Following is the balance sheet as of December 31, 1916:

Liabilities.	Amount.	Assets.	Amount.
Capital paid up, £10 per share.....	£1,000,000	Cash in hand, at bankers and at call.	£2,954,927
Reserve fund.....	1,000,000	Bills receivable in hand, and deposited with the company's bankers....	4,953,215
Pension and benevolent fund.....	95,174	Other accounts.....	6,667,424
Amount due on current and deposit accounts.....	8,029,128	Freehold and leasehold premises in London and South America at cost, less amounts written off.....	205,504
Bills payable.....	2,865,181		
Other accounts.....	1,631,348		
Profit and loss account, as per statement below.....	160,239		
	14,781,070		14,781,070

PROFIT AND LOSS ACCOUNT.

Debit.	Amount.	Credit.	Amount
General charges at head office and the branches, including directors' remuneration.....	£181,825	Balance from last account.....	£90,784
Income tax.....	11,815	Gross profits, after allowing for rebate of interest on current bills and drafts, interest on deposits, and ample provision for bad and doubtful debts and contingencies.....	324,631
Government taxes in Brazil and the River Plate.....	11,536		
Dividend on account for the half year ended June 30, 1916.....	50,000		
Balance carried down.....	160,239		
	415,415		415,415

ANGLO-SOUTH AMERICAN BANK (LTD.).

Following is the balance sheet of the Anglo-South American Bank as of June 30, 1917:

Liabilities.	Amount.	Assets.	Amount.
Issued capital—450,000 shares of £10 each, £5 paid.....	£2,250,000	Cash in hand, at bankers, and at call.	£3,037,453
Reserve fund.....	1,400,000	Bills receivable.....	9,309,600
Special reserve, on account of depreciation of capital in Chile.....	183,827	Investments:	
Bills payable—drafts on head office and branches, £5,642,122; drafts on London and foreign bankers, £338,044.....	5,981,166	English and foreign Government, railway and other securities, £1,804,341; holdings in foreign banks and kindred companies, £705,992—£2,510,333; less investments reserve, £310,000.....	2,200,333
Acceptances on account of customers..	1,295,830	Liability of customers for acceptances, per contra.....	1,295,830
Current, deposit, and other accounts..	14,114,982	Advances, etc.....	9,506,802
Rebate of interest on bills, etc., not due.	40,713	Bank premises, office furniture, etc...	309,817
Profit and loss, as per account below, £460,817, less interim dividend paid on Apr. 24, 1917, £87,500.....	393,317		
Liability on bills rediscounted, on uncalled capital, on investments held, and guarantees, £4,681,163, of which £4,436,728 has run off.....			
	25,659,835		25,659,835

NOTES.—The difference between the assets and liabilities in Chile is taken at the rate of exchange current at the date of the accounts, viz, 12½d. with the exception of such portion as represents the capital employed in Chile, which is now taken at 18d.

The special reserve of £183,827 is sufficient to write this capital down to 10d. per dollar.

Out of the above assets £1,576,356 have been lodged: As guaranty to the Chilean Government for due payment of drafts issued for duties, £419,538; for other purposes (amount of lien), £1,156,818—£1,576,356.

LONDON AND RIVER PLATE BANK (LTD.).

Following is the balance sheet of the London and River Plate Bank, as of September 30, 1916:

Liabilities.	Amount.	Assets.	Amount.
Capital, 120,000 shares of £25 each, on which £15 per share has been paid..	£1,800,000	Cash on hand, at bankers, and at branches.....	£8,267,245
Reserve fund.....	2,000,000	Bills receivable, bills discounted, advances, securities, etc., after deducting provision for contingencies.....	21,242,530
Acceptances—account branches.....	3,078,267	Bills receivable on London and continent not yet liquidated in consequence of the war.....	65,813
Acceptances—customers' drafts under merchandise credits, etc.....	44,022	Bills for collection.....	3,324,085
Bills advised—drafts in transit.....	1,595,153	Bank premises, including furniture...	332,930
Current accounts, etc., and deposits in currency at branches.....	19,937,662		
Current accounts and deposits at head office.....	431,803		
Montevideo branch—local currency emission.....	9,039		
Bills for collection on account of customers, per contra.....	3,324,085		
Rebate of interest on bills not due.....	59,614		
Profit and loss account.....	352,958		
	33,232,603		33,232,603

NOTE.—Contingent liability in consequence of the war, as indorsers of foreign bills negotiated, £13,665. Contingent liability on bills guaranteed, £41,809, of which £23,461 has since run off.

COMMERCIAL BANK OF SPANISH AMERICA (LTD.).

Following is the balance sheet of the Commercial Bank of Spanish America as of June 30, 1916:

Liabilities.	Amount.	Assets.	Amount.
Capital issued: 259,979 "A" shares of £1 each, fully paid, £259,979; 1,438 "B" shares of £1 each, fully paid, £1,438.....	£261,417	Cash at bankers and in hand.....	£36,819
Unclaimed dividends.....	119	Investments taken at market value at June 30, 1916, where quoted, otherwise at valuation.....	41,976
Reserve fund.....	33,000	Bills receivable.....	33,753
Current and other accounts.....	110,025	Loan and other accounts, including balances at branches, £373,727; less written off by transfer of suspense reserve account, £25,000.....	348,727
Bills payable.....	91,324	Properties and furniture.....	4,060
Profit and loss account, £14,946; less amount transferred to reserve fund, £1,000; suspense reserve account, £11,000—£12,000.....	2,946	Goodwill account, £50,677; less amount received re conversion of 49,239 "B" shares, £24,620.....	26,057
	498,831	Expenses re issue of new capital (stamp duty, underwriting commission, etc., as per last account).....	7,439
			498,831

PROFIT AND LOSS ACCOUNT.

Debit.	Amount.	Credit.	Amount.
Charges, including directors' fees, rent, taxes, salaries, cables, etc.....	£10,044	Balance brought forward from preceding year.....	£3,893
Income tax.....	1,853	Gross profits for the year ended June 30, 1916.....	25,682
Amount written off investments.....	2,727		
Amount added to reserve fund.....	1,000		
Suspense reserve account.....	11,000		
Balance.....	2,946		
	29,575		29,575

LONDON BANK OF CENTRAL AMERICA (LTD.).

Following is the balance sheet of the London Bank of Central America as of September 30, 1916:

Liabilities.	Amount.	Assets.	Amount.
Capital 27,570 shares of £1 each, fully paid.....	£27,570	Cash at bankers.....	£341
Sundry creditors.....	498	Shares of Banco Salvadoreño held for distribution to shareholders.....	244
Unclaimed dividends.....	916	Shares of Commercial Bank of Spanish America (Ltd.), held for distribution to shareholders, including 1,193 "B" shares converted into "A" shares by payment of 10s. per share out of the moneys in hand belonging to the same holders.....	2,386
Reserve fund.....	6,730	"A" shares of Commercial Bank of Spanish America, taken at par.....	31,403
Shares of Banco Salvadoreño held for distribution to shareholders.....	244	Other securities.....	3,838
Shares of Commercial Bank of Spanish America (Ltd.), held for distribution to shareholders.....	2,386	Sundry debtors.....	479
Profit and loss account—Balance brought forward from last year, £41; income for the year, £618—£659, less expenses £312.....	347		
	38,691		38,691

BANCO ESPAÑOL DEL RIO DE LA PLATA.

The report of the directors states that the net profits for the financial year ended June 30, 1917, amounted to £485,837, which, after deduction of £238,206 distributed in January, 1916, leaves a balance of £247,631, which the directors proposed to allocate as follows: Ninety per cent to the shareholders, £214,469; 2 per cent to the directors and auditors, £4,766; 2½ per cent to the staff pension and benevolent fund, £6,553; 1 per cent to the founder, Mr. A. J. Coelho, £2,383; one-fourth per cent to contributions to charity, £596; 4 per cent to the reserve fund, £9,532; total, £238,299. The balance of £9,332 was to be carried forward. The statutory reserve fund was to be increased to £4,209,219.

Following is the balance sheet as of June 30, 1917:

Liabilities.	Amount.	Assets.	Amount.
Capital subscribed.....	£8,730,158	Cash, at head office, Argentine and European branches.....	£7,474,521
Current accounts, and deposits at fixed term.....	21,563,046	Branches.....	3,042,540
Rebate—Corresponding to next half year.....	146,633	Shareholders (liability on uncalled capital).....	161,840
Conversion account—Balance.....	3,520,501	Bills discounted and advances in current account.....	21,156,052
Reserve fund.....	4,199,687	Conversion account—Balance.....	3,520,501
Sundries.....	933,261	Freehold property, furniture and fittings.....	1,176,270
Profit and loss balance (after paying interim dividend of 2½ per cent in January, 1917).....	247,631	Sundry securities.....	775,805
	39,340,917	Sundries—Correspondents and accounts in process of liquidation.....	2,033,388
			39,340,917

PROFIT AND LOSS ACCOUNT.

Debit.	Amount.	Credit.	Amount.
Interest, amortization of furniture, fittings, and premises, general charges, taxes, etc., dividend on founders' shares, salaries, etc.....	£398,417	Balance brought forward.....	£3,394
Allowance for bad and doubtful debts.....	62,022	Interest and discount.....	755,877
Distributed in January last:		Exchange and commission.....	186,465
Dividends.....	221,532		
Charities, as per articles of association.....	595		
Staff pension and benevolent fund.....	6,551		
Reserve fund.....	9,528		
Balance.....	247,631		
	946,276		946,276

LONDON AND BRAZILIAN BANK (LTD.).

The report presented to the meeting held on May 1, 1917, states that the accounts show an available balance of £498,850 (including £297,571 brought forward from the preceding year). An interim dividend of 14s. per share, amounting to £87,500, was paid in October, 1916. The directors recommended a further payment of 14s. per share, being a dividend at the rate of 14 per cent per annum. The directors also recommended the payment of a bonus of 4s. per share, thus making a total distribution of 16 per cent per annum, subject to income tax, on the paid-up capital of the bank. The above payments absorbed £200,000, leaving a balance of £298,850 to the credit of profit and loss new account.

Following is the balance sheet, as of January 31, 1917:

Liabilities.	Amount.	Assets.	Amount.
Capital—125,000 shares of £20 each; paid up £10 per share.....	£1,250,000	Specie and cash at head office and branches.....	£4,941,529
Reserve fund.....	1,400,000	Bills receivable.....	2,980,301
Current accounts and deposits in currency at branches, £8,335,728; current accounts and deposits at head office, £266,396.....	8,602,124	Bills discounted, loans, etc.....	6,459,540
Bills payable.....	3,538,408	Cash and remittances in transit, etc.....	1,418,411
Agents and sundry accounts.....	880,499	Bills for collection, as per contra.....	3,150,916
Bills for collection on account of customers.....	3,150,916	Bank premises at head office and branches.....	261,002
Profit and loss, £498,850; less dividend (interim) paid to July 31, 1916, £87,500.....	411,350	Furniture at head office and branches.....	1,598
	19,233,297		19,233,297

NOTE.—Contingent liabilities not included in balance sheet: As indorsers of foreign bills negotiated, £90,818. Staff pension and benevolent fund trust, £140,000.

PROFIT AND LOSS ACCOUNT.

Debit.	Amount.	Credit.	Amount.
Charges at head office and branches...	£255,431	Balance brought forward.....	£297,571
Taxes at home and abroad.....	45,355	Profit to Jan. 31, 1917, after providing for rebate of interest on bills discounted not due, and bad and doubtful debts.....	502,065
Dividend (interim) for the half year ended July 31, 1916.....	87,500		799,636
Balance carried forward.....	411,350		
	799,636		

BANCO ITALIANO DEL URUGUAY.

The Banco Italiano del Uruguay, of Montevideo, has an authorized capital of 5,000,000 Uruguayan gold pesos, of which 3,000,000 pesos is paid up. The reserve fund is 996,250 gold pesos and the provision fund 150,000 gold pesos.

BANCO ITALIANO, LIMA, PERU.

Following is the statement of accounts of the Banco Italiano, of Lima, Peru, as of June 30, 1917. The figures are expressed in Peruvian pounds, equivalent to the pound sterling (\$4.8665 in United States currency).

Liabilities.	Amount	Assets.	Amount.
Capital paid up.....	£p. 200,000.—	Cash in hand and at bankers.....	£p. 917,937.4.55
Reserve funds.....	113,079.3.27	Gold deposit as guaranty for bank-note circulation.....	226,910.0.00
Bank-note circulation.....	226,910.0.00	Bills discounted.....	427,197.4.63
Current and fixed deposits.....	1,789,884.9.02	Advances in current account.....	415,260.7.10
Securities deposited.....	1,297,347.6.79	Securities deposited.....	1,297,347.6.79
Other accounts.....	151,065.6.39	Investments and other accounts.....	493,634.2.40
	3,778,287.5.47		3,778,287.5.47

BANCO DE CHILE.

Following is the balance sheet of the Banco de Chile as of June 30, 1917:

Liabilities.	Paper pesos.	Gold pesos of 18 d.	Assets.	Paper pesos.	Gold pesos of 18 d.
Deposits:			Cash:		
At sight and in current account.....	101,999,533	.....	Treasury notes.....	1,778,500	.....
Fixed.....	75,905,035	.....	Fiscal notes.....	20,136,881	.....
In current account and at sight (gold).....	.....	22,148,381	Gold disposable in Chile and London.....	.....	5,656,002
In current account in London at 18d.....	.....	7,647,453	Silver.....	1,322,479	.....
Clearing balances outstanding.....	1,107,860	237,935	At short notice in Europe.....	.....	1,999,000
Deposit of bonds and documents.....	193,144,925	.....	Checks and balances disposable in other banks in Chile and abroad.....	10,302,159	16,311,661
Retirement fund.....	2,351,572	.....	Investment account.....	5,829,649	5,753,667
Various creditors.....	11,549,874	16,401,962	Bonds in custody and guaranty.....	193,144,925	.....
Suspense account.....	.....	2,862,883	Real estate.....	11,098,149	.....
Interest, discount, etc.....	.....	76,869	Furniture.....	512,474	4,053
Government Issue Department.....	6,000,000	.....	Books and stationery.....	379,424	.....
Government Issue Department (a/c customers).....	3,000,000	.....	Advances and other documents.....	181,823,017	.....
Pa d-up capital.....	40,000,000	.....	In gold in Chile and London at 18d.....	.....	23,041,266
Reserve fund.....	22,000,000	.....	(Clause 10 of bank act) (Art. 14, law 1054 of July 31, 1898).....	1,091,463	.....
Carry forward from last account.....	2,217,933	5,000,000	Agencies and branches.....	178,125	1,612,534
Unpaid dividends.....	78,931	.....	Suspense account.....	6,456,090	.....
Profit and loss account.....	3,801,179	.....	Interest discounts, etc.....	4,879,067	.....
			Discount of Government advances to nitrate producers.....	788,940	.....
			Advances to other banks.....	358,500	.....
			Treasury notes, law 3094 of April 29, 1916.....	77,000	.....
				23,000,000	.....
	463,156,842	54,375,483		463,156,842	54,375,483

COLONIAL BANK.

In addition to the banks previously listed in this appendix there is submitted herewith a statement of the Colonial Bank (incorporated 1836), which operates principally in the British West Indian Islands. The capitalization of the bank is as follows:

	Total.	Per share.
Subscribed.....	£2,000,000	£20
Paid up.....	600,000	6
Callable.....	400,000	4
Reserved.....	1,000,000	10
Market value.....	675,000	6 3/4

The net profits for the half year ended December 31, 1916, amounted to £33,234, which, with the balance of £43,701 brought forward, made an available sum of £76,935. A dividend of 3½ per cent for the half year was recommended, absorbing £15,750, and £50,000 was transferred to reserve fund, leaving £11,185 to be carried forward. Assets and liabilities are as follows:

ASSETS.

Year ended June 30—	Cash available.	Investments.	Bills receivable, etc.	Bills in transit, discounts, advances, etc.	Premises, etc.
1890.....	£923,192	£970,643	£1,300,043	£1,372,798	£25,000
1895.....	715,792	602,498	1,464,297	1,952,055	25,000
1900.....	575,566	1,098,695	1,035,101	1,227,752	25,000
1905.....	669,750	1,046,521	1,083,519	1,140,998	50,000
1910.....	917,823	1,285,965	979,368	1,017,213	50,000
1911.....	753,545	1,376,269	856,796	1,049,404	80,000
1912.....	649,523	1,237,038	860,341	1,222,781	80,000
1913.....	478,296	1,122,897	974,100	1,357,448	80,000
1914.....	676,805	1,098,554	923,580	1,233,785	80,000
1915.....	626,142	1,114,689	913,568	1,190,765	80,000
1916.....	606,364	907,498	1,799,747	1,729,791	α 282,499
1917 ^b	591,701	739,916	2,515,083	1,533,616	α 464,675

α Liability of customers, £202,499 and £384,675.

b Dec. 31, 1916.

LIABILITIES.

Year ended June 30—	Number of branches.	Capital and reserves.	Undivided profits.	Notes.	Bills payable, etc.	Deposit and current accounts.	Total liabilities or assets.
1890.....	13	£730,000	£58,724	£426,346	£1,463,103	£1,913,503	£4,591,676
1895.....	14	750,000	37,660	452,672	1,794,964	1,724,346	4,759,642
1900.....	13	750,000	26,597	439,871	794,592	1,951,054	3,962,114
1905.....	13	750,000	41,000	439,676	743,205	2,016,907	3,990,788
1910.....	13	750,000	54,357	451,967	539,471	2,454,574	4,250,369
1911.....	15	750,000	61,567	438,041	504,402	2,362,304	4,116,314
1912.....	14	750,000	62,906	428,802	493,330	2,314,645	4,049,683
1913.....	14	750,000	57,057	473,648	488,114	2,243,922	4,012,741
1914.....	14	750,000	53,682	414,225	518,303	2,276,514	4,012,724
1915.....	15	750,000	66,890	429,638	475,389	2,203,247	3,925,164
1916.....	19	750,000	60,501	496,855	672,477	3,346,066	5,325,899
1917 ^a	27	750,000	76,935	454,975	848,647	3,714,434	5,844,991

α Dec. 31, 1916.



Missing Page

